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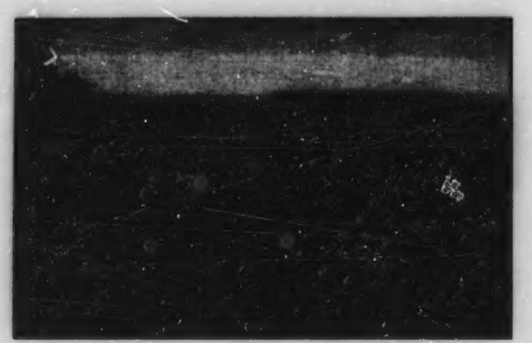
Environment Canada Environnement Canada

Canada

Environment Canada's Acid Precipitation Monitoring Networks in Atlantic Canada



Environment Canada-Atlantic Region, Occasional Report no. 16

Overview and Authors

The electronic document was designed to assemble in one place, all available information collected under Environment Canadas acid precipitation lake monitoring program in Atlantic Canada. The reason for producing the document is that much of the information exists in scattered databases and out-of-print technical reports, and is not easily available in one place. Moreover, there is a constant request for the information for a large number of uses, and we therefore felt that a summary document would be useful for a number of users.

The report contains a number of components. First, there is a listing of all sites being or which have been monitored in the regional acid precipitation network. There is a description of the lakes themselves, their locations, basins, bathymetry, and if available, a picture of the site. Then we list the data collected at the sites, along with the chemical methods used in their analysis.

To place the lake chemistry into context, we also present results from precipitation chemistry sampling at two sites in the region. These are part of Environment Canada's, Meteorological Service of Canada's CAPMoN (Canadian Air and Precipitation Monitoring Network) program and are located at the two extreme ends of the region, in Nova Scotia's Kejimkujik National Park, and in Newfoundland's Bay d'Espoir region. Data for three other CAPMoN stations located in Labrador, Nova Scotia and New Brunswick are also included for additional information.

We also provide references to the documentation which has been produced from the monitoring network. A number of papers describing data trends have been included, as well as a bibliography of other reports used to set up the program.

Finally, we identify and credit all those responsible for producing the information which is included in this document. Traditional paper reports simply do not provide the space to include the names of all those involved in its production, as well as their contribution. We will remedy this by identifying all those participating in the production of the data, as well as providing their pictures, if they are available.

Program and CD ROM Development

This Cd-Rom has been developed to provide the user with an overview of the Atlantic Region LRTAP lakes monitoring program. The application contains information about the program, associated atmospheric deposition monitoring and detailed information on the biophysical characteristics and water quality of the LRTAP lakes. The user can select individual lakes, view morphometric and biophysical information, view the historical water quality and upload the chemistry information in either database (.DBF) or spreadsheet (.XLS) format for further analysis.

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This frame show most of the information

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Lake Sampling and Sampling Methods

Lakes were selected using a number of criteria. As the lake distribution in both Nova Scotia and Newfoundland was not random, we did not select lakes randomly from a grid. Instead, we looked for areas where lakes, uneffected by development were naturally grouped. This allowed us to sample a greater number of sites, as there were logistical and cost advantages to selecting lakes which were close to each other.

Nova Scotia lake clusters were identified in the Yarmouth area of the southwest (1983- present), Kejimkujik National Park, in central NS (1983-present), the New Germany area of NS (1990 - present), the Eastern Shore of NS (1990 - present), Cape Breton Highlands National Park in the extreme northeast of the Province (1990 - present). Newfoundland lakes were sampled around Gros Morne National Park (western part of the Island) and Terra Nova National Park in the east. A number of other sites were sampled throughout the Island of Newfoundland based on the availability of samplers of convenience.

Samples were usually collected from a helicopter in the middle of the lakes. Every ten lakes, a set of triplicate samples were collected and evaluated to ennsure that laboratory analyses were consistent.

Analytical Methods and Procedures

Once collected in the field, the samples were shipped to Environment Canadas Analytical Laboratory in Moncton, New Brunswick. This chemistry laboratory is fully accredited by the Standards Council of Canada/Canadian Association (http://www.caeal.ca/) of Environmental Analytical Laboratories (SCC/CAEAL) for all relevant organic and inorganic parameters. The laboratories participate in performance evaluation round robins for these parameters twice a year, and undergo a site evaluation once every two years. The most recent site evaluation was in 1999. The laboratory has also participated in Environment Canadas acid precipitation quality control/quality assurance program from the beginning in 1983 to the present. A wealth of documented information is available in the form of hard copy reports for this program. Methods used over the years may be assessed to establish comparibility within and between various laboratories as methods and laboratory operations evolved.

Parameter analytical methods are described below:

Colour (apparent) - initially the visual comparison method was employed where sample colour is compared to a set of colour standards. The method was later automated by incorporating samples in a flow through system and

measuring color intensity in a colorimeter. Color measurements can be compared to dissolved organic carbon.

Specific conductance - initially was measured manually using a standard conductivity probe. The procedure was later automated.

TOC/DOC - persulfate digestion before 1994 and high temperature combustion method after. The method was changed after published work (Koprivnjak, J.F., J.G. Blanchette, R.A. Bourbonniere, T.A. Clair, A. Heyes, K.R. Lum, R. McRae, T.R. Moore, 1995, The underestimation of concentrations of dissolved organic carbon in freshwaters. Water Research 29: 91-94) revealed that the original method underestimated DOC concentrations by 15-20%. Some care must then be taken when using the DOC data in trend assessment. Colour may be an acceptable substitute in some cases.

Aluminum (Al), Manganese (Mn) and Iron (Fe) - direct aspiration with atomic absorption spectroscopy (AAS) for most of the series. 1996/97 and 1999 samples were analyzed using an inductively coupled plasma - optical emission spectrometer (ICP-OES) and inductively coupled plasma - mass spectrometer (ICP-MS) for Mn and Fe. 1998 samples were done using the AAS approach.

Acid Neutralization Capacity - potentiometric titration with strong acid, using Gran function, through 2 endpoints was sometimes used from 1989-92 on waters with pH values higher than 6.0.

pH - automated potentiometric procedure using a combination pH electrode.

NO2/NO3- automated procedure based on the colorimetric/ cadmium reduction method, used from 1982 to 1990, then nitrate was determinded by ion chromatography (IC).

Total Nitrogen - colorimetric analyses on an autoanalyzer with UV digestion.

SO4 - ion chromatography method, though waters low in DOC were sometimes analyzed using the colorimetric methyl thymol blue method until 1989. This method was known to overestimate concentrations in waters with DOC values greater than 6 mg/L (Kerekes, J., Howell, G., Pollock, T. 1984. Problems associated with sulfate determination in colored, humic waters in Kejimkujik National Park, Nova Scotia (Canada). Verh. Internat. Verein. Limnol. 22: 1811-1817.)

Calcium (Ca) and Magnesium (Mg) - analyzed by direct aspiration - atomic absorption spectroscopy, and later automated using the same technique.

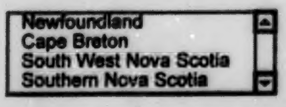
Chloride (Cl) - determined by specific ion electrode until 1986, then by IC.

This frame show most of the information

Sodium (Na), and Potassium (K) - samples analyzed on an autoanalyzer using a flame photometer. The same method was used over the entire period.

Atlantic Canada

Select Area :

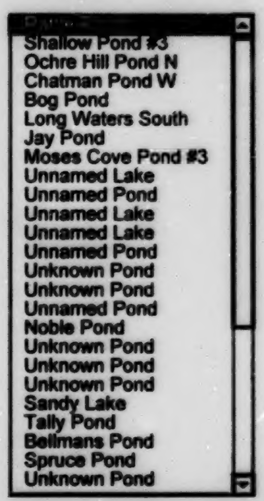


Newfoundland
Cape Breton
South West Nova Scotia
Southern Nova Scotia

To the right is a map of Atlantic Canada. Please choose the area you wish to go to by clicking on the respective square.

Atlantic Canada

Select Area :



[illegible]
Shallow Pond #3
Ochre Hill Pond N
Chatman Pond W
Bog Pond
Long Waters South
Jay Pond
Moses Cove Pond #3
Unnamed Lake
Unnamed Pond
Unnamed Lake
Unnamed Lake
Unnamed Pond
Unknown Pond
Unknown Pond
Unnamed Pond
Noble Pond
Unknown Pond
Unknown Pond
Unknown Pond
Sandy Lake
Tally Pond
Bellmans Pond
Spruce Pond
Unknown Pond

Rattle Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Park Harbour Brook	NF02YS0003	48 31 00	53 49 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
31	30.0	6.5	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.2	1.3	0.5	8.2	0.0

GEOLOGY	HADRYNIAN QUARTZITE, SILTSTONE, CONGOMERATE, GREYWACKE, VOLCANIC ROCKS
SOILS	BARE ROCK, LITHIC HUMO-FERRIC PODZOLS. MESISOLS, HUMISOLS, A FEW FIBRISOLS IN BOG & FEN
COVER	BLACK SPRUCE FOREST, WITH 5-10% SPHAGNUM BOG
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION DIVERGENS
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, POLYARTHA VULGARIS, DAPHNIA PULEX, CALANOID COPEPODS

Rattle Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Oct-83	15	25	6.6	L 0.0100	0.12	2.9	6	2.6	0.44	0.063	1.2	3.7	0.2	1.3	L 0.0100	0.09
07-Jun-84	40	23	8.4	L 0.0100	0.06	1.9	6.1	2	0.4	0.1	1.1	3.6	0.2	1.15	L 0.0100	0.08
26-Sep-84	40	22	6.8	L 0.0100	0.1	2.3	6.4	2.7	0.43	0.09	1	3.4	0.22	1.3	L 0.0100	0.12
11-Jun-85	20	24	6.1	L 0.0100	L 0.1000	2.1	6.2	2.4	0.4	0.08	2	3.8	0.23	1.25	0.01	0.069
24-Sep-85	5	27	5.7	L 0.0100	L 0.1000	2.7	6.5	2.7	0.61	0.068	2	3.8	0.25	1.4	L 0.0100	0.071
12-Jun-86	25	25	6	L 0.0100	L 0.1000	1.9	6.4	2.6	0.4	0.09	1.81	3.6	0.19	1.2	L 0.0100	0.06
23-Sep-86	5	27	4.6	L 0.0100	L 0.1000	3	6.4	2.6	0.44	0.048	1.4	3.8	0.19	1.4	L 0.0100	0.06
11-Jun-87	30	22	6.3	L 0.0100	L 0.1000	1.9	6.4	2.1	0.34	0.1	1.6	3.1	0.16	1.1	L 0.0100	0.05
21-Oct-87	5	26	4.3	L 0.0100	L 0.1000	2.8	6.6	2.6	0.41	0.035	1.5	3.8	0.17	1.2	0.01	0.05
15-Jun-88	35	27	6.3	L 0.0100	L 0.1000	1.7	6.2	2.7	0.42	0.13	1.7	4.1	0.2	1.3	L 0.0100	0.07

11-Oct-88	10	29	3.8	L 0.0100	L 0.1000	2.8	6.3	3	0.46	0.058	1.6	4.3	0.19	1.4	L 0.0100	0.06
22-Jun-89	30	27	4.8	L 0.0100	0.15	2.8	6.4	1.7	0.42	0.085	1.9	3	0.1	1.4	L 0.0100	0.044
11-Oct-89	10	31	3.7	L 0.0100	0.23	3.4	6.6	3.3	0.43	0.032	1.9	4.8	0.22	1.5	0.01	0.06
26-Jun-90	35	24.5	7.5	L 0.0100	0.12	2.3	6	2.8	0.36	0.15	2.7	3.5	0.22	1.2	0.01	0.1
17-Oct-90	30	27	5.9	0.02	0.15	3.1	6.5	2.9	0.45	0.088	1	3.3	0.22	1.3	L 0.0100	0.07
18-Jun-91	50	21	6.3	L 0.0100	0.11	2.2	6.1	2.4	0.32	0.13	1.2	2.3	0.15	1.1	L 0.0100	0.11
12-Oct-91	40	23	7.7	L 0.0100	0.2	3.1	6	2.7	0.4	0.15	1.4	3.1	0.25	1.3	0.01	0.17
26-May-92	35	20	4.6	L 0.0100	0.06	1.9	6.2	2.2	0.32	0.14	1.1	3.2	0.26	1.1	L 0.0100	0.11
12-Nov-92	45	24	6.6	L 0.0100	0.16	2.8	6.4	2.7	0.49	0.12	1.2	4	0.22	1.4	L 0.0100	0.16
12-Nov-92	50	24	6.6	L 0.0100	0.15	2.8	6.4	2.6	0.47	0.12	1.4	3.5	0.21	1.4	L 0.0100	0.13
18-May-93	40	22.9	5.7	L 0.0100	0.28	2.7	5.9	2.3	0.31	0.14	1.3	2.9	0.33	1	0.04	0.18
30-Oct-93	45	24	10.3	L 0.0200	0.24	3.4	6.3	2.8	0.49	0.16	1.4	3.7	0.38	1.28	0.01	0.16
21-May-94	40	19	6.9	L 0.0200	0.12	1.4	5.8	2	0.34	0.15	1.3	2.8	0.23	1.02	0.02	0.18

22-Sep-94	20	21	6.2	L 0.0200	0.11	2.6	6.4	2.3	0.39	0.063	0.82	5.8	0.26	1.2	L 0.0100	0.1
09-Jun-95	35	19.8	6.4	L 0.0200	0.07	1.8	6.1	2.1	0.34	0.13	0.96	3	0.2	1.1	0.05	0.16
27-Oct-95	50	29	9.5	L 0.0200	0.14	3	6.2	3.2	0.513	0.11	1.15	4.88	0.39	1.45	0.01	0.18
10-May-96	40	25	6.5	L 0.0200	0.11	2.2	6.1	2.6	0.38	0.12	1.13	3.95	0.33	1.14	0.01	0.09
08-Nov-96	25	32.4	7.4	L 0.0200	0.27	3.6	6.6	3.2	0.48	0.11	1.11	4.75	0.47	1.46	0.03	0.14
28-May-97	50	21.8	7.1	L 0.0200	0.09	2	6.1	2.32	0.34	0.14	0.9	3.17	0.23	1.07	0.01	0.15
22-Oct-97	20	24	5.8	L 0.0200	0.08	3.07	6.5	2.6	0.38	0.073	1.2	3.57	0.2	1.32	0.03	0.11
28-May-98	50	20.9	7.3	L 0.0200	0.05	2.01	6.04	2.09	0.32	0.12	1.11	2.76	0.18	0.91	L 0.0100	0.11
29-Sep-98	15	27.1	5.8	L 0.0200	0.1	3.42	6.55	2.68	0.47	0.059	1.13	4.07	0.22	1.36	L 0.0100	0.06
27-May-99	47	24.3	6.7	L 0.0200	0.05	1.75	5.89	2.68	0.39	0.11	1.23	4.02	0.25	1.11	0.07	L 0.0100
21-Sep-99	32	26	8.5	L 0.0200	0.09	2.22	6.28	2.77	0.45	0.092	1.2	4.05	0.25	1.42	0.114	0.107
28-Apr-00	39	23.4	5.6	L 0.0200	0.07	1.46	6.22	2.47	0.36	0.094	1.22	3.63	0.21	1.1	0.07	0.129

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:01:23

Shallow Pond #3

No Map

Drainage Basin	Station Number	Latitude	Longitude
Park Harbour Brook	NF02YS0065	48 30 00	53 50 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
46	5.0	0.2	0.0	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.0	0.3	0.2	9.1	0.0

GEOLOGY	HADRYNIAN QUARTZITE, SILTSTONE, CONGOMERATE, GREYWACKE, VOLCANIC ROCKS
SOILS	BARE ROCK, LITHIC HUMO-FERRIC PODZOLS. MESISOLS, HUMISOLS, A FEW FIBRISOLS IN BOG & FEN
COVER	MOSTLY BLACK SPRUCE FOREST WITH 5-10% SPHAGNUM BOG
FISH	SALVELINUS FONTINALIS, SALMO SALUR
PHYTOPLANKTON	DINOBRION SERTULARIA, ASTERIONELLA FORMOSA
ZOOPLANKTON	CALANOID COPEPODS

Shallow Pond #3 Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Oct-83	35	25	7.6	0.01	0.15	2.9	6	2.6	0.44	0.083	1.1	3.6	0.2	1.4	0.02	0.17
07-Jun-84	50	22	8.7	L 0.0100	0.08	1.8	6	1.9	0.38	0.11	1.1	3.3	0.2	1.15	L 0.0100	0.11
26-Sep-84	50	26	7.8	L 0.0100	0.1	2.1	6.4	2.5	0.43	0.11	1	3.3	0.22	1.4	0.01	0.15
11-Jun-85	25	24	6.8	L 0.0100	L 0.1000	2.1	6.2	2.4	0.4	0.1	2.2	3.7	0.23	1.35	0.01	0.1
24-Sep-85	20	26	7.2	L 0.0100	L 0.1000	2.6	6.4	2.6	0.61	0.083	2	3.6	0.22	1.5	L 0.0100	0.09
12-Jun-86	30	24	6.6	L 0.0100	L 0.1000	1.9	6.2	2.5	0.39	0.09	1.81	3.6	0.18	1.3	L 0.0100	0.11
23-Sep-86	15	26	5.6	L 0.0100	L 0.1000	2.7	6.3	2.5	0.42	0.057	1.6	3.5	0.18	1.4	L 0.0100	0.08
11-Jun-87	40	21	6.6	L 0.0100	L 0.1000	1.8	6.4	2.1	0.34	0.12	1.3	3	0.14	1.1	L 0.0100	0.1
21-Oct-87	5	25	5.2	L 0.0100	L 0.1000	2.6	6.4	2.4	0.42	0.055	1.5	3.5	0.17	1.3	0.01	0.09
15-Jun-88	40	25	6.3	L 0.0100	L 0.1000	1.5	6.1	2.6	0.41	0.14	1.6	3.9	0.19	1.2	0.01	0.1

11-Oct-88	30	27	4.8	L 0.0100	L 0.1000	2.6	6.2	2.7	0.44	0.088	1.5	4	0.16	1.4	L 0.0100	0.09
22-Jun-89	35	26	5.6	L 0.0100	0.17	3.9	6.5	2.7	0.4	0.09	2.3	3.4	0.2	1.3	0.01	0.06
11-Oct-89	20	28	4.4	L 0.0100	0.26	3.2	6.5	3	0.41	0.047	1.7	4.3	0.2	1.4	0.02	0.12
26-Jun-90	40	23.2	8.1	L 0.0100	0.12	1.9	5.9	2.5	0.34	0.14	2.7	3.3	0.22	1.2	0.02	0.11
17-Oct-90	40	27	7	0.02	0.16	3	6.3	2.8	0.44	0.12	1.8	3.1	0.22	1.3	0.02	0.14
18-Jun-91	60	20	6.4	L 0.0100	0.1	1.9	5.9	2.3	0.3	0.15	1.2	2.1	0.14	1.1	L 0.0100	0.15
12-Oct-91	90	26	12	0.03	0.22	2.3	5.6	2.9	0.5	0.26	1.7	3.3	0.26	1.33	0.03	0.49
26-May-92	40	20	5.9	L 0.0100	0.07	2	6.2	2.2	0.35	0.14	1	3.1	0.26	1.1	0.01	0.18
12-Nov-92	60	25	9.3	L 0.0100	0.18	3	6.3	2.7	0.5	0.15	1.2	3.8	0.23	1.5	0.01	0.2
18-May-93	45	22.7	7.1	L 0.0100	0.24	2.2	6	2.3	0.34	0.15	1.3	3.1	0.31	1.1	0.04	0.24
23-Oct-93	55	25	10.9	L 0.0200	0.32	3.6	6.2	2.9	0.46	0.17	1.4	4.1	0.42	1.37	0.01	0.21
21-May-94	40	17.8	7	L 0.0200	0.09	1.5	5.9	1.8	0.3	0.26	1.3	2.6	0.2	0.97	0.15	0.59
22-Sep-94	30	21	7.3	L 0.0200	0.1	2.5	6.3	2.1	0.4	0.077	0.86	5.8	0.21	1.3	0.01	0.13

09-Jun-95	35	22	6.4	L 0.0200	0.11	1.4	6.1	2.4	0.37	0.09	0.98	3.5	0.3	1.1	0.01	0.12
15-Oct-95	55	24	9.4	L 0.0200	0.14	2.6	6.1	2.5	0.429	0.13	1.04	3.76	0.33	1.44	0.02	0.19
10-May-96	45	23	6.7	L 0.0200	0.08	2	6.1	2.4	0.37	0.14	1.11	3.6	0.27	1.2	0.01	0.15
08-Nov-96	35	29.4	8	L 0.0200	0.1	3.1	6.5	2.8	0.47	0.12	0.98	4.09	0.27	1.54	0.02	0.14
28-May-97	55	20.8	7.5	L 0.0200	0.12	1.8	6	2.14	0.32	0.15	0.86	2.92	0.23	1.04	0.02	0.21
22-Oct-97	35	23.5	6.2	L 0.0200	0.08	2.88	6.4	2.49	0.37	0.095	1.17	3.28	0.21	1.31	0.04	0.18
28-May-98	55	20.2	7.3	L 0.0200	0.05	2.01	6.05	2	0.33	0.13	1.12	2.71	0.16	0.93	0.01	0.15
29-Sep-98	25	23.6	6.5	L 0.0200	0.1	2.65	6.24	2.44	0.38	0.089	1.18	3.24	0.22	1.26	0.01	0.11
27-May-99	50	23.2	7.2	L 0.0200	0.05	1.54	5.76	2.5	0.36	0.11	1.19	3.77	0.24	1.1	0.08	L 0.0100
21-Sep-99	42	25.8	9.2	L 0.0200	0.09	2.33	6.15	2.64	0.45	0.114	1.12	3.83	0.24	1.47	0.147	0.128
28-Apr-00	48	22.9	6.2	L 0.0200	0.03	1.18	5.91	2.36	0.34	0.105	1.15	3.35	0.19	1.1	0.08	0.0894

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Ochre Hill Pond N

No Map

Drainage Basin	Station Number	Latitude	Longitude
Bread Cove	NF02YS0069	48 30 00	52 58 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
153	3.0	0.7	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.0	0.2	0.1	0.0	0.0

GEOLOGY	HADRYNIAN QUARTZITE, SILTSTONE, CONGOMERATE, GREYWACKE, VOLCANIC ROCKS
SOILS	BARE BEDROCK WITH SOME TERRIC MESOSOLS & SPHAGNO-FIBRISOLS
COVER	BLACK SPRUCE, WITH APPROX 35% OPEN SPHAGNUM BOG
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SOCIALE, OSCILLATORIA LIMOSA, TABELLARIA FENESTRATA, MOUGEOTIA QUADRANGULATA
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, DAPHNIA PULEX, CALANOID COPEPODS

Ochre Hill Pond North

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Oct-83	100	21	11	0.02	0.17	1.8	5.8	2.2		0.16	1	2.7	0.1	1.2	0.01	0.34
07-Jun-84	90	17	6.1	L 0.0100	0.08	0.9	5.5	1.3	0.3	0.13	0.9	2.4	0.2	0.73	0.01	0.19
26-Sep-84	120	21	12	L 0.0100	0.1	1.3	5.5	2.2	0.41	0.23	1	2.6	0.19	1	0.01	0.38
11-Jun-85	60	18	7.7	L 0.0100	L 0.1000	1.3	5.7	1.9	0.3	0.15	1	2.4	0.15	0.9	0.01	0.16
24-Sep-85	80	21	11	L 0.0100	L 0.1000	1.8	6.1	2.1	0.39	0.17	1	2.6	0.2	1.2	0.01	0.35
12-Jun-86	70	20	8	L 0.0100	L 0.1000	1.4	5.9	2	0.36	0.14	1.1	2.8	0.16	0.99	0.01	0.18
23-Sep-86	60	23	8	L 0.0100	0.1	1.9	6.1	2.1	0.44	0.15	1.2	2.6	0.14	1.3	L 0.0100	0.24
11-Jun-87	70	18	7.9	L 0.0100	L 0.1000	1.4	6	1.7	0.3	0.157	1.7	2.4	0.11	0.92	L 0.0100	0.18
21-Oct-87	35	22	6.4	L 0.0100	L 0.1000	2.5	6.4	2.1	0.41	0.11	1.4	2.7	0.13	1.2	0.01	0.16
15-Jun-88	75	20	8.2	L 0.0100	L 0.1000	1.5	5.7	2.1	0.37	0.19	1.2	2.9	0.14	0.94	0.01	0.18

11-Oct-88	65	23	6.6	0.01	L 0.1000	2.5	6.1	2.3	0.44	0.16	1.3	3.1	0.12	1.2	L 0.0100 0.19
11-Oct-89	100	26	8.1	L 0.0100	0.3	2.2	6	2.6	0.41	0.14	1.5	3.2	0.16	1.2	L 0.0100 0.25
26-Jun-90	100	16.8	9.9	L 0.0100	0.14	1.3	5.4	1.7	0.27	0.21	1.1	1.8	0.1	0.81	0.02 0.16
17-Oct-90	190	24	17.6	0.02	0.21	1.3	5.1	2.5	0.51	0.29	1.6	2.3	0.16	1.1	0.02 0.51
18-Jun-91	100	16	7.1	L 0.0100	0.12	1.4	5.5	1.7	0.29	0.19	0.9	1.3	0.1	0.8	L 0.0100 0.2
05-Oct-91	65	19	8.8	L 0.0100	0.21	2.3	5.9	2.1	0.37	0.18	1.2	2.3	0.2	1.05	0.01 0.28
26-May-92	65	16	5.1	L 0.0100	0.07	0.6	5.7	1.6	0.3	0.17	0.8	2.2	0.22	0.8	0.02 0.26
12-Nov-92	140	21	11	L 0.0100	0.2	1.3	5.4	2.1	0.44	0.27	1	2.7	0.19	1.1	0.01 0.33
19-May-93	75	16.4	7.7	L 0.0100	0.25	0.9	5.6	1.7	0.25	0.15	1	1.9	0.25	0.68	0.03 0.28
14-Oct-93	175	18.8	18.1	L 0.0200	0.19	0.7	5	1.9	0.39	0.27	1.2	2	0.21	0.95	0.03 0.55
18-May-94	90	15.8	9.1	L 0.0200	0.12	-0.1	5.1	1.5	0.22	0.16	0.9	2.1	0.24	0.62	0.02 0.24
26-Sep-94	80	20	10.3	0.04	0.18	1.6	5.8	2	0.39	0.21	1	6	0.24	1.1	0.03 0.52
12-Jun-95	85	17.1	8	L 0.0200	0.12	0.8	5.5	1.7	0.29	0.15	0.7	2.6	0.26	0.75	0.02 0.28

01-Nov-95	125	20	11.9	L 0.0200	0.06	1.5	5.5	2.1	0.383	0.22	0.92	2.8	0.18	1.03	0.01	0.41
19-May-96	110	19	8.6	L 0.0200	0.05	0.7	5.4	1.9	0.31	0.17	0.91	2.8	0.2	0.78	0.01	0.26
23-Oct-96	150	25.1	15.6	L 0.0200	0.11	1.2	5.2	2.4	0.43	0.31	0.79	3.05	0.2	1.14	0.02	0.49
23-May-97	110	20	10	L 0.0200	0.5	1.7	5.7	2.08	0.25	0.16	0.61	2.45	0.77	0.61	0.02	0.37
08-Oct-97	135	23.1	12.9	L 0.0200	0.21	2.13	5.7	2.44	0.38	0.23	1	2.75	0.38	1.11	0.02	0.46
15-Jun-98	115	16.6	8.9	L 0.0200	0.1	1.32	5.55	1.59	0.27	0.16	0.72	1.96	0.16	0.65	0.01	0.29
30-Sep-98	120	23.6	14.2	L 0.0200	0.15	1.22	5.32	2.22	0.43	0.22	1.41	2.71	0.18	1.1	0.02	0.47
14-May-99	91	19.9	8.6	L 0.0200	0.25	0.99	5.35	2.11	0.26	0.14	0.865	2.97	0.43	0.63	0.25	0.02
21-Sep-99	181	24.9	20.3	L 0.0200	0.37	0.9	5.05	2.38	0.44	0.303	0.86	2.61	0.58	1.04	0.843	0.554
28-Apr-00	110	19.9	9	L 0.0200	0.18	-0.12	5.32	1.89	0.27	0.159	0.81	2.66	0.48	0.7	0.36	0.202

Last Modified By: clairt
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Chatman Pond W

No Map

Drainage Basin	Station Number	Latitude	Longitude
Bread Cove	NF02YS0070	48 29 30	53 59 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
137	3.0	0.3	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
0.8	0.3	0.1	0.0	0.0

GEOLOGY	HADRYNIAN QUARTZITE, SILTSTONE, CONGOMERATE, GREYWACKE, VOLCANIC ROCKS
SOILS	VARYING FROM ORTHIC HUMO-FERRIC PODZOLS TO ORTHIC GLEYSOLS
COVER	BLACK SPRUCE FOREST WITH BOGGY AREAS
FISH	DINOBRION SERTULARIA, ANACYSTIS AERUGINOSA, TABELLARIA FLOCCULOSA, MOUGEOTIA SCALARIS
PHYTOPLANKTON	KERATELLA TAUROCEPHALA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA EURYPTERA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS

Chatman Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Oct-83	100	25	12	L 0.0100	0.18	3.7	6	2.5	0.53	0.17	1.1	2.9	0.1	2	L 0.0100	0.11
07-Jun-84	100	18	12	L 0.0100	0.08	1.7	5.9	1.7	0.35	0.12	0.9	2.4	0.2	1.1	L 0.0100	0.13
26-Sep-84	160	21	14	L 0.0100	0.1	2	5.9	2.4	0.44	0.22	1	2.7	0.19	1.5	L 0.0100	0.2
11-Jun-85	60	18	7.5	L 0.0100	L 0.1000	1.7	6.1	1.8	0.3	0.11	0.8	2.3	0.14	1.12	L 0.0100	0.088
24-Sep-85	70	25	9.9	L 0.0100	0.13	3.6	6.5	2.3	0.5	0.14	0.8	2.6	0.15	1.8	L 0.0100	0.086
12-Jun-86	70	21	8.8	L 0.0100	0.1	1.9	6.2	2.2	0.4	0.13	1	2.8	0.1	1.3	L 0.0100	0.12
23-Sep-86	80	27	10	L 0.0100	0.12	3.8	6.4	2.4	0.57	0.14	1.1	3.2	0.11	2	L 0.0100	0.12
11-Jun-87	70	20	8	L 0.0100	L 0.1000	2.5	6.4	1.9	0.36	0.112	0.6	2.4	0.12	1.3	L 0.0100	0.11
21-Oct-87	40	30	9.2	L 0.0100	0.11	4.7	6.5	2.7	0.56	0.1	1.7	3.4	0.13	2	L 0.0100	0.11
15-Jun-88	90	20	8.7	L 0.0100	L 0.1000	2.2	6	2	0.39	0.17	1	2.7	0.11	1.2	L 0.0100	0.15

11-Oct-88	80	28	8	0.04	0.1	3.9	6.3	2.6	0.59	0.16	1.4	3.2	0.14	1.9	L 0.0100	0.12
11-Oct-89	80	27	7.4	L 0.0100	0.38	5.1	6.6	2.9	0.64	0.097	1.7	3	0.22	2.1	L 0.0100	0.11
26-Jun-90	130	19.2	14.1	L 0.0100	0.14	0.5	5	1.8	0.27	0.22	1.1	1.9	0.12	0.81	0.03	0.34
17-Oct-90	110	21	10.2	0.02	0.21	2.1	5.7	2.5	0.46	0.24	1.5	1.8	0.25	1.1	0.02	0.15
18-Jun-91	105	16	7.1	L 0.0100	0.12	2.2	5.9	1.8	0.29	0.17	0.8	1.4	L 0.1000	1.1	L 0.0100	0.16
05-Oct-91	70	24	10.8	L 0.0100	0.26	3.9	6.1	2.4	0.48	0.17	1.2	2.3	0.2	1.69	L 0.0100	0.17
26-May-92	75	15	5	L 0.0100	0.12	1.6	6.1	1.6	0.28	0.13	0.7	1.8	0.16	0.95	L 0.0100	0.16
12-Nov-92	145	25	12	0.38	0.22	3.1	6.1	2.4	0.61	0.28	3.4	1.3	0.2	1.9	L 0.0100	0.2
19-May-93	90	15.9	6.5	L 0.0100	0.19	1.4	5.8	1.5	0.27	0.16	0.9	1.9	0.19	0.96	L 0.0100	0.1
15-Oct-93	185	21	19.6	0.04	0.27	2.4	5.6	2	0.51	0.31	1.2	2.3	0.44	1.63	0.01	0.39
22-May-94	75	16.2	8.4	L 0.0200	0.19	1.5	5.7	1.6	0.25	0.14	0.9	2.2	0.25	0.89	L 0.0100	0.15
26-Sep-94	75	23	12	0.03	0.17	3.7	6.2	2.3	0.51	0.16	1.8	5.4	0.22	1.7	L 0.0100	0.18
24-May-95	80	18	8.2	L 0.0200	0.16	2.2	6	1.6	0.34	0.12	0.78	2.4	0.29	1.3	L 0.0100	0.14

06-Oct-95	165	23	16.2	L 0.0200	0.09	2.5	5.7	2.2	0.519	0.24	0.91	2.59	0.23	1.78	0.01	0.26
09-May-96	65	22	6.1	L 0.0200	0.06	3.2	6.3	2.2	0.39	0.11	0.94	2.9	0.18	1.43	L 0.0100	0.09
23-Oct-96	130	28.2	15.5	L 0.0200	0.13	3.6	6.3	2.5	0.6	0.27	0.93	3.01	0.18	1.95	L 0.0100	0.19
23-May-97	105	18.5	8.6	L 0.0200	0.26	2.9	6.2	1.66	0.34	0.14	0.51	1.92	0.31	1.18	L 0.0100	0.21
08-Oct-97	105	26.6	11.5	L 0.0200	0.18	5.24	6.3	2.33	0.57	0.17	1.18	2.41	0.22	2.15	L 0.0100	0.18
19-May-98	105	22.5	8.5	L 0.0200	0.31	3.62	6.25	2.12	0.36	0.17	0.65	2.61	0.38	1.15	L 0.0100	0.22
24-Sep-98	90	27.3	12.5	L 0.0200	0.13	5.08	6.66	2.3	0.64	0.15	1.31	2.52	0.14	2.21	L 0.0100	0.16
14-May-99	84	20.6	9.1	L 0.0200	0.13	2.1	5.76	2.19	0.35	0.15	0.815	2.78	0.28	1.17	0.11	0.01
30-Sep-99	173	26.1	20.5	L 0.0200	0.16	2.81	5.81	2.41	0.61	0.292	0.99	2.57	0.26	2.14	0.361	0.164
01-May-00	87	19.9	7.7	L 0.0200	0.14	2.6	6.22	1.71	0.38	0.138	0.79	2.28	0.26	1.4	0.17	0.0403

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 15:52:54

Bog Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Clode Sound	NF02YS0021	48 29 30	54 08 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
198	10.0	1.4	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.1	0.3	0.3	0.0	0.0

GEOLOGY	HADRYNIAN SILTSTONE, ARKOSE, CONGLOMERATE, SLATE, VOLCANIC ROCK
SOILS	BARE ROCK, LITHIC HUMO-FERRIC PODZOLS. MESISOLS, HUMISOLS, A FEW FIBRISOLS IN BOG & FEN COMPLEXES
COVER	MOSTLY SPHAGNUM BOG, WITH APPROX 20% BLACK SPRUCE
FISH	VERY SHALLOW LAKE
PHYTOPLANKTON	SYNURA UVELLA, APHANOTHECE CASTAGNII, PERIDINIUM CINCTUM, ASTERIONELLA FORMOSA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA, HOLOPEDIUM GIBBERIUM, DAPHNIA PULEX, DIAPTOMUS MINUTUS

Bog Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
03-Oct-83	45	17	8	L 0.0100	0.17	1.8	5.9	1.9	0.31	0.075	0.9	2.1	0.2	0.9	L 0.0100	0.16
07-Jun-84	40	12.3	5.9	L 0.0100	0.06	0.9	5.7	0.9	0.22	0.067	1	1.8	0.2	0.48	L 0.0100	0.12
26-Sep-84	50	16	7.9	L 0.0100	0.1	1.1	5.9	1.7	0.27	0.09	L 1.0000	1.8	0.22	0.72	L 0.0100	0.15
11-Jun-85	10	12.1	4.5	L 0.0100	0.1	1.2	5.8	1.2	0.2	0.04	1.4	1.7	0.2	0.6	0.01	0.07
24-Sep-85	10	15	5.3	L 0.0100	0.12	1.7	6.2	1.7	0.24	0.052	1.5	1.8	0.2	0.71	L 0.0100	0.084
12-Jun-86	25	15	5.2	L 0.0100	0.12	1.4	6	1.6	0.23	0.04	1.3	2.2	0.18	0.62	L 0.0100	0.07
23-Sep-86	20	18	6.6	L 0.0100	0.12	1.9	6.2	1.2	0.3	0.042	1.4	2.2	0.1	0.87	L 0.0100	0.1
11-Jun-87	15	12.4	3.9	L 0.0100	L 0.1000	1.1	6.2	1.2	0.18	0.042	0.7	1.6	0.15	0.57	L 0.0100	0.1
21-Oct-87	5	19	4.3	L 0.0100	0.11	1.7	6.4	1.9	0.27	0.025	1.7	2.4	0.18	0.74	L 0.0100	0.07
15-Jun-88	40	14	5.4	L 0.0100	L 0.1000	1.1	5.8	1.3	0.19	0.09	0.9	1.8	0.16	0.51	L 0.0100	0.1

11-Oct-88	10	18	3.5	0.01	0.13	1.5	6.1	1.9	0.28	0.044	1.4	2.2	0.13	0.81	L 0.0100	0.07
22-Jun-89	20	15	3.6	L 0.0100	0.22		6	1.5	0.18	0.041	1.2	3	0.23	0.55	L 0.0100	0.06
11-Oct-89	25	19	4.5	L 0.0100	0.34	2.4	6.3	2.2	0.25	0.031	1.4	2.4	0.21	0.85	L 0.0100	0.12
26-Jun-90	30	13.4	5.4	L 0.0100	0.12	1.3	5.8	1.4	0.18	0.1	1.2	1.5	0.19	0.56	L 0.0100	0.14
17-Oct-90	40	18	5.6	0.01	0.19	2.1	6	2	0.26	0.085	1.6	1.8	0.19	0.79	L 0.0100	0.16
18-Jun-91	45	12	4.1	L 0.0100	0.09	1.4	5.7	1.3	0.17	0.09	0.7	1	0.17	0.54	L 0.0100	0.12
06-Oct-91	190	32	27.2	L 0.0100	0.34	0.6	4.6	2.4	0.62	0.41	1.2	2.2	0.4	1.82	0.04	0.78
26-May-92	20	11	2.8	L 0.0100	0.06	0.7	5.8	1.2	0.15	0.08	0.5	1.6	0.3	0.53	L 0.0100	0.12
12-Nov-92	60	17	6.3	L 0.0200	0.17	1.2	5.8	1.8	0.32	0.13	1.2	2.4	0.19	0.8	L 0.0100	0.27
21-May-93	25	14.7	3.7	L 0.0100	0.4	1.8	5.9	1.5	0.14	0.071	0.7	1.7	0.49	0.44	0.01	0.23
28-Oct-93	50	14.8	8	L 0.0200	0.17	1.7	5.9	1.5	0.28	0.12	0.9	1.6	0.21	0.68	0.01	0.25
02-Jun-94	25	11.4	4.1	L 0.0200	0.1	1.1	5.9	1.2	0.15	0.073	0.6	1.7	0.22	0.49	L 0.0100	0.12
22-Sep-94	25	15	6.8	0.04	0.17	2	6.1	1.7	0.26	0.056	5.4	0.89	0.2	0.79	L 0.0100	0.2

02-Jun-95	30	12	3.8	L 0.0200	0.07	0.3	5.8	1.3	0.15	0.086	0.48	1.9	0.23	0.48	0.02	0.76
24-Oct-95	65	21	9.1	L 0.0200	0.05	0.5	5.1	1.8	0.281	0.081	0.63	2.56	0.23	0.739	0.04	0.8
22-May-96	25	16.8	4.2	L 0.0200	0.17	1.5	6	1.9	0.2	0.049	0.68	2.61	0.43	0.63	L 0.0100	0.1
24-Oct-96	25	19.3	5.1	L 0.0200	0.07	1.7	6.2	1.9	0.31	0.062	0.96	2.5	0.13	0.74	0.03	0.38
26-May-97	45	11.7	5.1	L 0.0200	0.19	1.3	5.9	1.19	0.16	0.083	0.38	1.29	0.31	0.48	L 0.0100	0.21
26-Oct-97	45	18.1	6.3	L 0.0200	0.18	1.98	6.1	2.05	0.26	0.084	1.46	2.22	0.32	0.82	L 0.0100	0.19
20-May-98	45	11.3	4.7	L 0.0200	0.13	1.08	5.57	1.02	0.14	0.077	0.43	1.28	0.16	0.4	L 0.0100	0.15
28-Sep-98	30	17.5	7	L 0.0200	0.09	1.84	6.1	1.7	0.28	0.067	1.04	1.74	0.16	0.69	0.01	0.2
26-May-99	38	13.8	5.8	L 0.0200	0.06	1.12	5.74	1.54	0.18	0.069	0.565	2.06	0.26	0.54	0.15	L 0.0100
13-Oct-99	135	17.41	14.3	L 0.0200	0.11	0.95	5.31	1.56	0.29	0.096	0.55	1.81	0.08	1.16	0.747	0.195
09-May-00	26	11.1	3	L 0.0200	0.06	-0.02	5.8	1.25	0.15	0.066	0.54	1.58	0.19	0.4	0.1	0.0311

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Long Waters South

No Map

Drainage Basin	Station Number	Latitude	Longitude
Clode Sound	NF02YS0029	48 27 30	54 03 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
137	30	1.2	0.00	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.0	0.60	3.5	0.0

GEOLOGY	HADRYNIAN VOLCANIC ROCK, SLATE, GREYWACKE, CONGLOMERATE
SOILS	LITHOSOLIC PODZOLS & GLEYSOLS. MESISOLS, HUMISOLS, A FEW FIBRISOLS IN BOG & FEN
COVER	APPROX 50-50% BLACK SPRUCE, SPHAGNUM BOG
FISH	SALVELINUS FONTINALIS
PHYTOPLANKTON	TABELLARIA FLOCCULOSA, MELOSIRA DISTANS, SPIROGYRA VARIANS, MOUGEOTIA QUADRANGULATA
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, CALANOID COPEPODS

Long Waters South Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
17-Jun-83	40	20	5.5	L 0.0100	0.17	1.9	6	1.5	0.25	0.095	0.8	2.4	0.1	1.2	L 0.0100	0.16
05-Oct-83	45	20	8.3	L 0.0100	0.14	2.4	6	1.7	0.35	0.068	0.9	2.6	0.1	1.5	L 0.0100	0.17
07-Jun-84	55	18	9.4	L 0.0100	0.07	1.7	6	1.2	0.3	0.075	1	2.4	0.2	1.23	0.01	0.12
26-Sep-84	80	21	8.1	L 0.0100	0.1	1.8	6.3	1.8	0.35	0.095	L 1.0000	2.4	0.22	1.4	0.01	0.15
11-Jun-85	30	18	6.5	L 0.0100	L 0.1000	1.7	6.1	1.5	0.3	0.08	2	2.3	0.16	1.25	0.01	0.079
24-Sep-85	10	20	6.1	L 0.0100	0.11	2.6	6.5	1.7	0.32	0.067	2	2.4	0.2	1.5	0.011	0.19
12-Jun-86	35	19	6	L 0.0100	0.1	1.9	6.3	1.7	0.33	0.08	1	2.5	0.14	1.3	0.01	0.13
23-Sep-86	15	21	5.8	L 0.0100	L 0.1000	2.7	6.4	1.6	0.36	0.035	1.2	2	0.13	1.5	L 0.0100	0.08
11-Jun-87	35	18	5.8	L 0.0100	L 0.1000	2	6.4	1.4	0.28	0.072	0.8	2.1	0.12	1.3	L 0.0100	0.12
21-Oct-87	5	20	4.4	L 0.0100	L 0.1000	2.6	6.5	1.7	0.31	0.03	1.3	2.5	0.18	1.3	0.01	0.09

15-Jun-88	40	19	6.6	L 0.0100	L 0.1000	1.6	6.1	1.7	0.31	0.1	1.2	2.6	0.11	1.2	L 0.0100	0.13
11-Oct-88	20	21	4.2	0.01	0.1	2.4	6.3	1.9	0.35	0.058	1.3	2.8	0.11	1.5	0.01	0.09
22-Jun-89	35	21	4.8	L 0.0100	0.16	2.7	6.3	1.8	0.32	0.074	1.8	3	0.13	1.5	L 0.0100	0.09
11-Oct-89	20	22	4.3	L 0.0100	0.27	2.9	6.4	2.2	0.3	0.043	1.4	2.9	0.15	1.5	L 0.0100	0.13
17-Oct-90	40	21	6.3	0.01	0.16	3	6.4	2	0.37	0.081	1.6	2.1	0.13	1.4	L 0.0100	0.12
18-Jun-91	65	16	6.7	L 0.0100	0.11	2.2	5.9	1.5	0.27	0.11	0.8	1.4	L 0.1000	1.2	L 0.0100	0.11
05-Oct-91	60	26	12.5	L 0.0100	0.31	4.1	6	2.3	0.43	0.14	1.1	2.7	0.26	2.24	0.02	0.35
26-May-92	45	16	5.1	L 0.0100	0.1	1.6	6.1	1.4	0.27	0.13	0.7	2.1	0.22	1.2	0.02	0.22
12-Nov-92	55	17	5.9	0.11	0.19	1.9	6	1.5	0.32	0.11	6	3.7	0.15	1.2	L 0.0100	0.19
19-May-93	65	20.5	7.1	L 0.0100	0.44	2.4	6	2	0.23	0.13	0.9	2.5	0.49	0.96	0.01	0.2
17-Oct-93	65	16.8	10.8	L 0.0200	0.23	2.4	6	1.6	0.31	0.14	1.1	2	0.26	1.31	0.01	0.22
08-Jun-94	70	16.1	9.5	L 0.0200	0.11	0.8	5.4	1.4	0.26	0.12	1	2.3	0.19	1.02	L 0.0100	0.22
01-Oct-94	40	18.3	8.6	L 0.0200	0.1	1.9	6.1	1.7	0.34	0.083	2.4	5	0.17	1.4	L 0.0100	0.16

28-May-95	50	15.8	7.1	L 0.0200	0.08	1.6	6	1.2	0.27	0.095	0.6	2.2	0.21	1.1	0.07	0.23
07-Oct-95	70	18.4	9.8	L 0.0200	0.11	2	5.9	1.6	0.311	0.099	0.74	2.35	0.23	1.29	0.01	0.23
09-May-96	55	21	7.8	L 0.0200	0.18	2	6	2	0.29	0.11	0.78	3.02	0.38	1.13	L 0.0100	0.15
24-Oct-96	40	21.2	7.1	L 0.0200	0.07	2.5	6.4	1.8	0.33	0.071	0.78	2.58	0.13	1.4	0.01	0.21
27-May-97	100	16.8	10.8	L 0.0200	0.14	1.2	5.4	1.54	0.26	0.16	0.5	1.78	0.19	0.99	0.02	0.28
20-Oct-97	35	22	6.6	L 0.0200	0.24	3.23	6.4	2.29	0.31	0.063	0.87	2.88	0.34	1.39	L 0.0100	0.13
21-May-98	90	17.7	8	L 0.0200	0.15	1.6	5.62	1.63	0.24	0.11	0.72	2.12	0.17	0.93	0.02	0.21
29-Oct-98	55	24.2	10.5	L 0.0200	0.11	3.55	6.44	2.07	0.45	0.14	0.96	2.68	0.14	1.93	0.04	0.34
28-May-99	58	18.5	8.2	L 0.0200	0.08	1.86	5.81	1.89	0.29	0.1	0.802	2.48	0.19	1.16	0.15	L 0.0100
07-Oct-99	44	18.09	7.5	L 0.0200	0.09	1.58	6.16	2.19	0.27	0.091	0.73	1.96	0.17	1.06	0.201	0.0773
09-May-00	62	18.5	7.3	L 0.0200	0.04	0.77	5.7	1.69	0.3	0.136	0.79	2.48	0.15	1.2	0.21	0.093

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Jay Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Alexander Bay	NF02YS0045	44 38 15	53 53 05

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
76	8.0	0.8	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.0	0.2	0.2	0.0	0.0

GEOLOGY	HADRYNIAN QUARTZITE, SILTSTONE, CONGOMERATE, GREYWACKE, VOLCANIC ROCKS
SOILS	BARE ROCK, LITHIC PODZOLS & LITHIC GLEYSOLS
COVER	BLACK SPRUCE FOREST
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SERTULARIA, GYMNODIUM FUSCAM, SYNEDRA CAPITATA, FRAGILLARIA CAPUCINA, DICTOSPHAERIUM PULCELLUM
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, HOLOPEDIUM GIBBERIUM, DAPHNIA PULEX, CALANOID COPEPODS

Jay Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
17-Jun-83	50	31	7.2	0.04	0.21	2.7	6	2.7	0.5	0.15	1.3	3.9	0.2	1.5	L 0.0100	0.17
05-Oct-83	70	31	14	L 0.0100	0.18	3.6	6.1	2.9	0.6	0.12	1.1	4.1	0.2	2.5	L 0.0100	0.23
07-Jun-84	110	22	16	L 0.0100	0.06	1.9	5	2	0.43	0.18	1	3	0.2	1.45	L 0.0100	0.32
26-Sep-84	160	31	20	L 0.0100	0.14	2.4	5.9	2.8	0.6	0.26	L 1.0000	3.9	0.25	2.3	0.01	0.52
11-Jun-85	60	24	10	L 0.0100	0.1	2.1	6.3	2.3	0.4	0.13	1	3.3	0.23	1.5	0.01	0.16
24-Sep-85	80	30	14	L 0.0100	0.12	2.7	6.2	2.8	0.54	0.2	0.8	3.9	0.2	2.3	L 0.0100	0.4
12-Jun-86	70	26	9.6	L 0.0100	0.1	2.3	6.2	2.6	0.41	0.12	1	3.3	0.18	1.7	L 0.0100	0.25
23-Sep-86	80	31	14	L 0.0100	0.13	3.2	6.3	1.8	0.55	0.13	0.7	4.1	0.1	2.3	L 0.0100	0.36
11-Jun-87	70	23	10	L 0.0100	L 0.1000	2.5	6.3	2	0.36	0.13	1.1	3	0.19	1.6	L 0.0100	0.25
21-Oct-87	15	36	8.1	L 0.0100	0.12	3.8	6.6	3	0.57	0.068	3	4.7	0.2	2.4	L 0.0100	0.15

15-Jun-88	120	27	12	L 0.0100	L 0.1000	2.6	5.9	2.6	0.45	0.21	1.2	3.6	0.19	1.7	L 0.0100	0.32
11-Oct-88	65	34	9	L 0.0100	0.12	3.5	6.3	3.1	0.61	0.14	1.6	4.8	0.19	2.3	0.01	0.22
11-Oct-89	30	34	6.8	L 0.0100	0.32	4.5	6.5	3.4	0.63	0.052	1.7	5.1	0.22	2.3	0.01	0.17
26-Jun-90	130	23.7	15.7	L 0.0100	0.16	2.3	5.6	2.4	0.4	0.24	1.6	2.7	0.15	1.7	0.03	0.53
17-Oct-90	100	31	13.9	0.01	0.22	3.6	6.2	3	0.63	0.18	1.8	3.8	0.18	2.3	0.01	0.34
18-Jun-91	110	21	9.4	L 0.0100	0.22	2.7	6.2	2.2	0.32	0.18	1.1	2.2	0.23	1.4	L 0.0100	0.27
04-Oct-91	80	28	10.5	L 0.0100	0.28	4	6.1	2.8	0.52	0.22	1.2	3.3	0.23	2.21	0.02	0.49
26-May-92	75	23	7.5	L 0.0100	0.23	2.5	6.1	2.2	0.35	0.18	0.8	3.3	0.46	1.5	L 0.1000	0.23
12-Nov-92	140	32	14.1	L 0.0100	0.25	2.8	5.8	3.1	0.69	0.33	1	5	0.26	2.5	0.01	0.52
21-May-93	100	18.7	11.5	L 0.0100	0.17	1.8	5.6	1.8	0.29	0.2	0.9	1.9	0.26	1.2	0.02	0.46
25-Oct-93	140	25	18.8	L 0.0200	0.28	3.7	6	2.4	0.61	0.3	1	3.2	0.26	2.06	0.02	0.68
28-May-94	90	22	11.5	L 0.0200	0.19	2.4	5.9	2.3	0.36	0.22	0.9	3.1	0.33	1.49	0.05	0.52
01-Oct-94	100	30	17.1	L 0.0200	0.14	3.8	6	2.6	0.65	0.18	2.7	0.76	0.27	2.6	0.09	0.99

12-Jun-95	60	24	9	L 0.0200	0.1	2.3	6	2.2	0.37	0.14	0.69	3.5	0.27	1.7	0.07	0.39
04-Oct-95	155	29	18.2	L 0.0200	0.14	3	5.8	2.8	0.582	0.24	0.7	3.98	0.5	2.27	0.03	0.81
09-May-96	85	26	10.5	L 0.0200	0.1	3.1	6	2.6	0.39	0.18	0.88	3.59	0.29	1.72	0.03	0.42
23-Oct-96	80	35.2	13.9	L 0.0200	0.11	3.7	6.4	3	0.61	0.097	0.9	4.91	0.2	2.47	0.02	0.44
27-May-97	175	20.5	16.7	L 0.0200	0.19	1.3	5.2	2.08	0.33	0.34	0.74	1.8	0.24	1.02	0.02	0.64
13-Oct-97	75	29.4	12.3	L 0.0200	0.12	3.71	6.2	2.67	0.5	0.13	1.56	3.58	0.15	2.35	0.01	0.38
20-May-98	130	23.1	11.9	L 0.0200	0.23	2.19	5.56	2.29	0.32	0.17	0.76	2.81	0.36	1.22	0.02	0.43
15-Oct-98	90	31.8	15	L 0.0200	0.11	3.21	6.04	2.85	0.58	0.17	0.94	4.76	0.13	2.39	0.05	0.61
18-May-99	73	31.1	11.5	L 0.0200	0.28	2.93	5.87	3.3	0.44	0.13	1.05	4.89	0.5	1.78	0.35	0.03
21-Sep-99	153	32.2	21.5	L 0.0200	0.15	3.16	5.77	2.93	0.65	0.282	0.81	3.94	0.23	2.7	0.833	0.541
10-May-00	110	23.2	10.7	L 0.0200	0.21	1.96	5.91	4.04	0.35	0.212	0.89	2.98	0.98	1.4	0.38	0.171

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Moses Cove Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Newman Sound	NF02YS0048	48 35 50	53 45 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
61	20.0	0.8	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.8	1.0	0.2	0.0	0.0

GEOLOGY	HADRYNIAN QUARTZITE, SILTSTONE, CONGOMERATE, GREYWACKE, VOLCANIC ROCKS
SOILS	VERY SHALLOW, MOSTLY OUTCROP
COVER	BLACK SPRUCE FOREST, CLADONIA SP GROUND COVER
FISH	NOT SAMPLED
PHYTOPLANKTON	ASTERIONELLA FORMOSA, TABELLARIA FENESTRATA, VLOTHRIX ZONATA, EUDORINA ELEGANS
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, CYCLOPOID NAUPLII, CALANOID COPEPODS

Moses Cove Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
17-Jun-83	70	26	8.2	L 0.0100	0.18	2.3	6	2.1	0.45	0.24	0.8	2.9	0.4	1.4	L 0.0100	0.34
05-Oct-83	10	37	5.8	L 0.0100	0.14	1.4	5.9	4.6	0.62	0.093	2	6.9	0.4	1.1	L 0.0100	0.028
07-Jun-84	25	36	7.6	L 0.0100	0.08	1.5	6	4	0.54	0.12	2.5	7	0.3	1	L 0.0100	0.03
26-Sep-84	30	37	6	L 0.0100	0.1	1.2	6	4.6	0.56	0.13	2.1	6.7	0.35	0.97	0.01	0.03
11-Jun-85	5	36	5.5	L 0.0100	L 0.1000	1.4	6.1	4.2	0.6	0.1	2.5	7	0.3	1.1	L 0.0100	0.042
24-Sep-85	5	37	5.7	L 0.0100	L 0.1000	1.4	6.1	4.4	0.55	0.097	2.5	7	0.35	1.1	L 0.0100	0.023
12-Jun-86	15	36	5.6	L 0.0100	L 0.1000	1.3	6.1	4.4	0.58	0.11	2.18	6.9	0.3	1.1	L 0.0100	0.03
23-Sep-86	10	37	5	L 0.0100	L 0.1000	1.5	6.2	4.3	0.6	0.08	2.3	7.1	0.32	1.1	L 0.0100	0.03
11-Jun-87	20	31	6.2	L 0.0100	L 0.1000	1.4	6.2	3.9	0.54	0.12	2.1	6.8	0.25	1.1	L 0.0100	0.041
21-Oct-87	5	37	4.8	L 0.0100	L 0.1000	1.7	6.3	4.3	0.59	0.082	2.1	7.3	0.27	1.1	0.02	0.08

15-Jun-88	20	38	5.7	L 0.0100	L 0.1000	1.7	6.3	4.6	0.63	0.13	2.2	7.3	0.31	1.2	L 0.0100	0.046
11-Oct-88	10	39	5.4	L 0.0100	L 0.1000	1.9	6.1	4.6	0.62	0.091	2.2	7.7	0.28	1.1	0.01	0.05
11-Oct-89	5	39	3.5	L 0.0100	0.24	2.3	6.3	4.6	0.54	0.057	2.4	7.8	0.3	1.2	L 0.0100	0.041
26-Jun-90	10	37.3	5.6	L 0.0100	0.12	1.7	6	4.7	0.54	0.12	2.7	7.4	0.31	1.2	0.01	0.06
17-Oct-90	20	40	5.6	L 0.0100	0.15	2	6.2	5	0.63	0.091	2.5	6.8	0.33	1.1	0.02	0.05
18-Jun-91	35	34	5.4	L 0.0100	0.13	1.9	6	4.5	0.52	0.14	2.3	6.2	0.27	1.1	L 0.0100	0.06
26-May-92	20	33	5	L 0.0100	0.14	1.8	6.1	4.2	0.47	0.15	2	6.6	0.42	1.1	0.02	0.1
12-Nov-92	30	34	5.1	L 0.0100	0.13	1.4	6	4.4	0.6	0.12	2	7	0.34	1	0.02	0.12
23-May-93	35	32.4	5.1	L 0.0100	0.15	1.4	5.9	4	0.5	0.13	2	6.2	0.37	1	0.02	0.06
23-Oct-93	30	31	7.4	L 0.0200	0.21	2.2	6.2	4.2	0.55	0.14	2.1	6.7	0.45	0.96	0.02	0.08
29-May-94	25	30	6.8	L 0.0200	0.09	1.5	5.9	3.7	0.5	0.13	2.1	6	0.33	1.02	0.01	0.05
24-Sep-94	45	31	8.8	0.03	0.13	1.5	5.8	3.9	0.56	0.19	2.2	5.1	0.3	1	0.03	0.22
11-Jun-95	50	36	7	L 0.0200	0.11	1.4	5.7	4.5	0.63	0.17	1.9	7.5	0.35	0.99	0.02	0.14

01-Oct-95	30	36	7.8	L 0.0200	0.19	2	6	4.5	0.602	0.12	2.03	7.24	0.59	1.03	0.01	0.05
20-May-96	30	37	6.7	L 0.0200	0.21	2.1	6	4.4	0.58	0.13	1.92	7.22	0.57	1.08	L 0.0100	0.036
06-Nov-96	20	41.8	6	L 0.0200	0.14	1.8	6.1	4.7	0.64	0.12	1.87	7.7	0.42	1.19	0.01	0.06
28-May-97	40	33.5	6.6	L 0.0200	0.13	1.6	6	3.86	0.53	0.16	1.46	6.39	0.31	1.03	L 0.0100	0.07
31-Oct-97	30	36.7	6.2	L 0.0200	0.09	1.96	6	4.5	0.56	0.11	1.98	7.58	0.34	1.13	0.01	0.07
07-Jun-98	35	34	6.6	L 0.0200	0.13	1.81	6.01	4.02	0.51	0.17	1.84	6.33	0.29	0.98	0.01	0.04
08-Oct-98	15	36.7	5.8	L 0.0200	0.19	1.98	6.16	4.13	0.56	0.1	1.96	6.72	0.33	1.11	0.02	0.06
27-May-99	34	35.4	6.7	L 0.0200	0.06	1.52	5.72	4.25	0.57	0.1	1.86	6.68	0.27	1.11	0.05	L 0.0100
06-Nov-99	31	41.3	8	L 0.0200	0.25	1.5	5.95	4.97	0.67	0.145	2	8.16	0.51	1.19		0.136
10-May-00	29	35.8	5.8	L 0.0200	0.09	0.97	5.98	4.2	0.57	0.138	1.89	6.93	0.29	1.1		0.0989

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 15:57:58

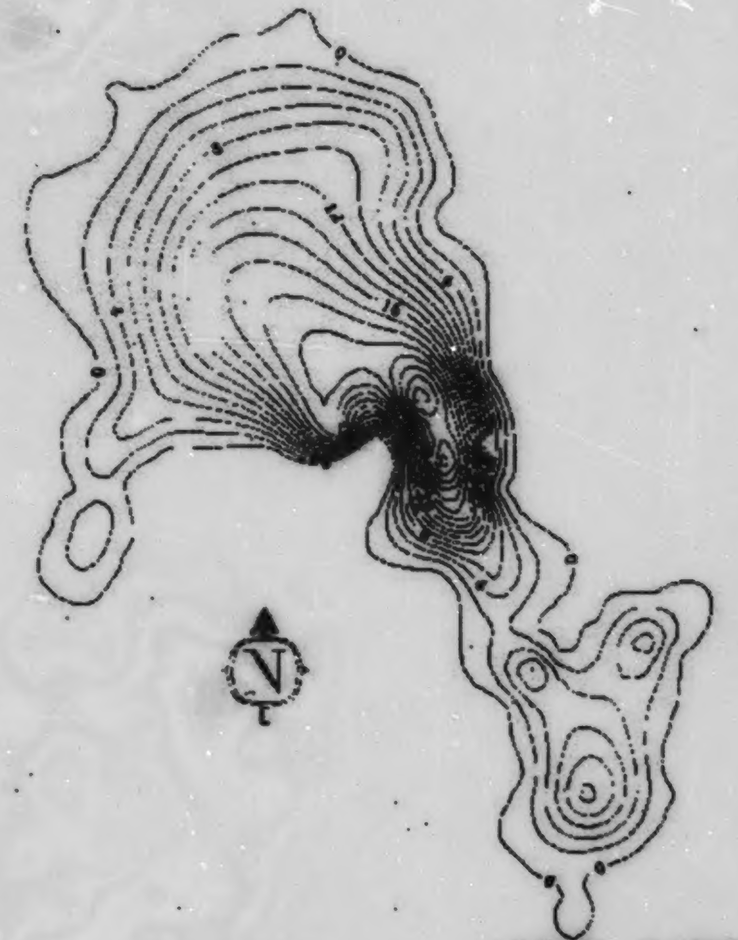
Unnamed Lake

Drainage Basin	Station Number	Latitude	Longitude
MACKENZIE MILL BROOK	NF02YH0025	49 33 40	57 43 25

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
670	14.93	0.65	749397	0.82

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.3	0.60	0.30	18.14	5.02

GEOLOGY	HELIKIAN QUARTZO-FELDSPATHIC GNEISS & SCHIST, AMPHIBOLITE, PSAMMITIC TO PELITIC GNEISS
SOILS	LITHIC GLEYED ORTHIC REGOSOL, TERRIC TYPIC HUMISOLS, REGO GLEYSOLS
COVER	BALSAM FIR & UPLAND TUCKAMOOR
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA COCHLEARIS, CALANOID COPEPODS


0
8
12
10
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N

AMED LAKE

Station no. NF02YH0025

SCALE 1 cm. = 80 meters

2 meter contours

Unnamed Lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
25-Sep-84	10	14	2.6	0.01	L 0.1000	0.3	5.8	1.4	0.25	0.1	1.5	2	0.15	0.45	0.01	0.05
12-Jun-85	5	18	2.1	0.06	0.11	0.4	5.5	1.7	0.35	0.11	1.9	3.1	0.16	0.55	0.01	0.09
25-Sep-85	L 5.0000	16	2.1	L 0.0100	L 0.1000	0.3	5.7	1.4	0.25	0.098	1.7	2.6	0.2	0.46	L 0.0100	0.038
12-Jun-86	10	17	3	L 0.0100	0.11	0.5	5.7	1.7	0.3	0.1	1.51	2.9	0.14	0.45	0.01	0.07
24-Sep-86	5	17	2.3	L 0.0100	L 0.1000	0.6	5.7	1.7	0.3	0.1	1.8	2.6	0.16	0.5	0.03	0.15
09-Jun-87	10	19	2.1	0.04	L 0.1000	0.5	5.6	1.8	0.34	0.11	1.5	3.5	0.15	0.54	0.02	0.21
20-Oct-87	5	18	2.5	L 0.0100	L 0.1000	0.4	5.6	1.7	0.32	0.13	1.4	3.1	0.17	0.48	0.02	0.09
14-Jun-88	10	17	2.5	L 0.0100	L 0.1000	0.9	5.7	1.8	0.28	0.1	1.3	2.9	0.14	0.48	0.01	0.15
12-Oct-88	10	18	2.4	L 0.0100	L 0.1000	0.4	5.6	1.8	0.31	0.11	1.6	3.1	0.14	0.5	0.01	0.1
20-Jun-89	10	17	1.8	0.03	0.18	0.2	5.5	1.8	0.26	0.1	1.3	2.5	0.2	0.44	0.01	0.15

11-Oct-89	20	17	2.2	L 0.0100	0.18	0.5	5.6	1.8	0.25	0.13	1.4	2.7	0.16	0.53	0.01	0.07
29-Jun-90	5	16.2	1.7	L 0.0100	0.11	0.3	5.5	1.5	0.27	0.11	1.6	1.5	0.14	0.44	0.01	0.11
18-Oct-90	20	16	2.8	0.02	0.11	0.5	5.7	1.5	0.28	0.13	1.7	2.7	0.16	0.45	L 0.0100	0.07
19-Jun-91	25	13	2.3	0.03	0.04	0.1	5.3	1.4	0.21	0.11	0.9	1.3	L 0.1000	0.39	L 0.0100	0.05
07-Oct-91	20	13	2.7	0.02	0.15	0.8	5.7	1.4	0.23	0.15	0.9	2	0.18	0.4	L 0.0100	0.1
13-Jul-92	15	14	1.8	0.03	0.09	0.1	5.8	1.6	0.24	0.11	0.9	2.4	0.15	0.42	L 0.0100	0.048
26-Nov-92	20	15	2.7	0.03		0.3	5.6	1.7	0.3	0.16	1.4	2.6	0.2	0.51	L 0.0100	0.09
16-Jun-93	35	10	2.5	0.03	0.14	0.7	5.9	1	0.14	0.083	0.6	1.5	0.21	0.29	L 0.0100	0.17
27-Sep-93	30	15	3	0.02	0.21	1.1	5.7	1.7	0.27	0.13	1.4	2.4	0.27	0.58	L 0.0100	0.06
21-Jun-94	15	15.5	3.1	0.06	0.1	0.4	5.4	1.5	0.28	0.14	1.4	2.5	0.2	0.45	0.01	0.1
14-Oct-94	35	14.7	4.4	0.02	0.09	0.1	5.4	1.5	0.27	0.12	1.1	2.3	0.19	0.39	0.01	0.17
15-May-95	27	14.6	3.7	0.0698	0.1	0.2	5.2	1.5	0.249	0.22	1.07	2.23	0.17	0.333	0.01	0.16
06-Dec-95	25	14.2	4.3	L 0.0200	0.06	0.3	5.6	1.5	0.263	0.13	1.15	2.1	0.18	0.471	L 0.0100	0.05

03-Jul-96	20	12.8	2.9	L 0.0200	0.06	0.1	5.7	1.3	0.22	0.14	0.98	1.84	0.17	0.47	L 0.0100	0.13
23-Oct-96	40	17	5.8	L 0.0200	0.1	0.3	5.4	1.8	0.28	0.26	0.85	2.29	0.35	0.45	L 0.0100	0.07
21-Jul-99	15	14.93	2.4	L 0.0200	0.01	1.12	5.78	1.62	0.27	0.106	0.99	2.48	0.15	0.49	0.004	L 0.0500
15-Jul-00	21	16.5	1.7	0.04	0.07	-0.36	5.56	1.74	0.29	0.113	1.04	2.74	0.15	0.5	0.05	0.0567

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:12:09

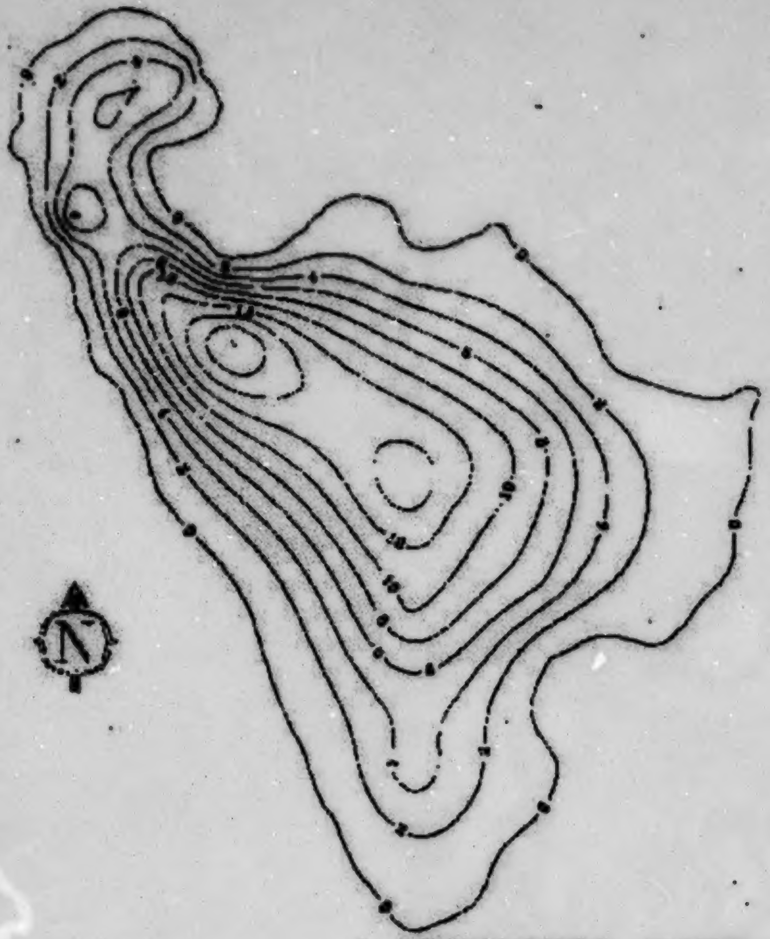
Unnamed Pond

Drainage Basin	Station Number	Latitude	Longitude
EAST ARM BONNE BAY	NF02YH0026	49 31 20	57 42 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
750	10.43	0.90	332382	2.57

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.00	0.40	0.30	11.89	3.19

GEOLOGY	HELIKIAN QUARTZO-FELDSPATHIC GNEISS & SCHIST, AMPHIBOLITE, PSAMMITIC TO PELITIC GNEISS
SOILS	LITHIC GLEYED ORTHIC REGOSOLS, REGO GLEYSOL, TERRIC TYPIC MESISOL
COVER	BALSAM FIR, SEDGE BOG, UPLAND TUCKAMOOR
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	KERATELLA COCHLEARIS, KELLICOTTIA LONGISPINA, POLYARTHA VULGARIS,CYCLOPOID COPEPODS


N
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12

UNNAMED LAKE

Station no. [illegible]

SCALE 1 cm. – 40 meters

2 meter contours

Unnamed Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
25-Sep-84	5	14.6	2.2	0.01	L 0.1000	1.2	6.3	1.6	0.25	0.083	1.5	1.7	0.22	0.48	L 0.0100	0.05
12-Jun-85	5	15	1.4	0.01	0.12	0.7	5.7	1.5	0.25	0.1	1.4	2.6	0.2	0.4	0.006	0.081
25-Sep-85	5	15	2.4	L 0.0100	L 0.1000	1.1	6.1	1.7	0.23	0.12	1.7	2.2	0.22	0.46	L 0.0100	0.053
12-Jun-86	15	14	3	L 0.0100	L 0.1000	0.8	5.8	1.5	0.21	0.12	1.33	2.2	0.16	0.4	L 0.0100	0.06
24-Sep-86	5	17	2.2	L 0.0100	L 0.1000	1.3	6.1	1.8	0.27	0.11	1.5	2.7	0.19	0.54	L 0.0100	0.07
09-Jun-87	10	18	2.1	L 0.0100	L 0.1000	0.9	5.8	1.9	0.25	0.11	1.6	3	0.15	0.45	L 0.0100	0.046
20-Oct-87	10	20	2.9	L 0.0100	L 0.1000	1	5.9	2.1	0.33	0.19	1.5	3.3	0.2	0.53	L 0.0100	0.05
14-Jun-88	20	13	3.2	L 0.0100	L 0.1000	1.2	5.9	1.4	0.19	0.13	1	2	0.11	0.38	L 0.0100	0.06
12-Oct-88	10	19	2.5	L 0.0100	L 0.1000	1.1	6	2.1	0.33	0.18	1.8	3	0.21	0.62	L 0.0100	0.06
20-Jun-89	15	12.4	1.8	L 0.0100	0.18		5.8	1.4	0.16	0.11	1	2.2	0.2	0.33	L 0.0100	0.05

11-Oct-89	20	16	2.6	L 0.0100	0.22	1.3	6	1.9	0.25	0.15	1.3	2.5	0.21	0.69	L 0.0100	0.07
29-Jun-90	5	12	1.6	L 0.0100	0.07	0.9	5.8	1.2	0.17	0.1	1.2	1.9	0.16	0.35	L 0.0100	0.045
18-Oct-90	30	15	3.7	L 0.0100	0.14	1.3	5.9	1.5	0.24	0.17	1.5	2.2	0.23	0.47	L 0.0100	0.05
19-Jun-91	30	11	1.7	0.02	L 0.0300	1.1	5.9	1.2	0.17	0.11	0.8	1.2	0.14	0.39	L 0.0100	0.07
13-Jul-92	15	12	1.3	L 0.0100	0.07	0.9	6.2	1.5	0.19	0.11	0.5	2.2	0.18	0.36	L 0.0100	0.028
26-Nov-92	L 5.0000	31	L 0.5000	0.15		8.3	6.1	2.9	0.56	0.12	1.4	3.1	0.33	2.1	L 0.0100	0.004
16-Jun-93	20	13.9	1.9	L 0.0100	0.2	1.3	5.9	1.6	0.16	0.1	0.9	2.1	0.35	0.45	L 0.0100	0.08
27-Sep-93	30	15	3.2	0.01	0.15	1.5	5.9	1.8	0.27	0.16	1.5	2.2	0.26	0.63	L 0.0100	0.05
21-Jun-94	15	12.8	2.6	0.02	0.1	0.4	5.6	1.2	0.2	0.19	1	1.8	0.24	0.37	L 0.0100	0.23
14-Oct-94	45	15.5	5	L 0.0200	0.09	-0.6	4.8	1.2	0.21	0.15	1.2	1.7	0.15	0.24	0.01	0.31
15-May-95	18	31.5	2.9	0.0656	0.3	2	5.8	3.1	0.594	0.16	1.41	2.51	0.39	1.2	0.02	0.25
06-Dec-95	22	17.9	3.8	0.0665	0.11	1.3	6.1	2.1	0.344	0.41	1.3	2.59	0.27	0.663	L 0.0100	0.27
03-Jul-96	20	11.3	2.7	L 0.0200	0.06	0.8	6	1.3	0.19	0.13	0.77	1.36	0.21	0.36	L 0.0100	0.06

23-Oct-96	10	16.2	2.3	0.07	0.16	0.5	5.7	1.6	0.25	0.11	1.07	2.32	0.2	0.39	L 0.0100	0.01
24-Oct-96	10	15.6	2.1	0.07	0.11	0.16	5.6	1.6	0.24	0.2	1.14	2.26	0.16	0.45	L 0.0100	0.01

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:12:49

Unnamed Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
East Arm Bonne Bay	NS02YH0013	49 35 50	57 43 55

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
725	42.59	1.54	3101320	0.47

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.00	1.25	0.60	31.12	7.46

GEOLOGY	HELIKIAN QUARTZO-FELDSPATHIC GNEISS & SCHIST, AMPHIBOLITE, PSAMMITIC TO PELITIC GNEISS
SOILS	LITHIC REGO GLEYSOLS, LITHIC GLEYSOL ORTHIC REGOSOL
COVER	HEATH VEGETATION, UPLAND TUCKAMOOR, BALSAM FIR
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	KERATELLA COCHLEARIS, CYCLOPOID NAUPLII, CALANOID COPEPODS

Unnamed Lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
25-Sep-84	L 5.0000	16	L 1.0000	0.09	0.12	-0.3	5.2	1.5	0.23	0.08	1.4	2.5	0.15	0.27	0.01	L 0.0500
12-Jun-85	L 5.0000	18	0.8	0.12	0.15	-0.3	5.1	1.7	0.3	0.09	1.4	3	0.14	0.3	0.01	0.012
25-Sep-85	L 5.0000	16	0.6	0.07	0.11	-0.2	5.3	1.4	0.23	0.071	1.5	2.9	0.15	0.28	L 0.0100	0.006
12-Jun-86	L 5.0000	18	0.8	0.08	0.11	-0.1	5.2	1.7	0.26	0.08	1.36	3	0.11	0.28	L 0.0100	0.01
24-Sep-86	L 5.0000	17	0.6	0.08	L 0.1000	-0.2	5.2	1.6	0.25	0.085	1.8	2	0.13	0.3	L 0.0100	0.011
09-Jun-87	L 5.0000	20	0.8	0.12	0.12	-0.1	5.2	1.7	0.29	0.085	1.6	3.5	0.11	0.33	L 0.0100	0.014
20-Oct-87	L 5.0000	19	0.6	0.1	0.13	-0.2	5.2	1.7	0.28	0.086	1.4	3.2	0.14	0.31	0.01	0.007
14-Jun-88	L 5.0000	20	1.1	0.06	0.11	0.4	5.3	1.9	0.28	0.082	1.4	3.3	0.13	0.3	L 0.0100	0.014
12-Oct-88	L 5.0000	19	0.6	0.08	0.11	-0.3	5.2	1.9	0.28	0.078	1.4	3.3	0.13	0.29	L 0.0100	0.005
20-Jun-89	10	16	1.8	0.06	0.17	-0.2	5.1	1.6	0.21	0.096	1.2	2.3	0.18	0.27	L 0.0100	0.06

11-Oct-89	L 5.0000	17	0.9	0.1	0.18	-0.1	5.5	2	0.29	0.071	1.5	3.1	0.18	0.46	L 0.0100	0.014
29-Jun-90	L 5.0000	17.1	L 0.5000	0.11	0.1	-0.3	5.1	1.5	0.22	0.079	1	2.5	0.14	0.22	L 0.0100	0.015
18-Oct-90	L 5.0000	17	0.7	0.1	0.16	-0.1	5.3	1.7	0.27	0.083	1.7	2.3	0.14	0.27	L 0.0100	0.015
19-Jun-91	L 5.0000	17	0.8	0.11	0.06	-0.2	5.1	1.8	0.23	0.089	1.3	2.4	0.1	0.29	L 0.0100	0.015
13-Jul-92	L 5.0000	150	0.6	0.13	0.12	-0.4	5.3	1.7	0.24	0.093	1	2.7	0.14	0.24	L 0.0100	0.014
26-Nov-92	L 5.0000	15	1.1	0.12		-0.6	5.3	1.6	0.21	0.085	1.4	2.7	0.16	0.26	L 0.0100	0.025
16-Jun-93	40	11.8	3	0.04	0.18	0.5	5.6	1.3	0.18	0.15	0.8	1.5	0.18	0.45	L 0.0100	0.11
27-Sep-93	5	14	1	0.12	0.17	0.3	5.3	1.6	0.21	0.091	1.4	2.3	0.17	0.34	L 0.0100	0.016
21-Jun-94	L 5.0000	17.4	1.7	0.15	0.21	0.1	5.1	1.5	0.24	0.097	1.5	2.8	0.18	0.26	L 0.0100	0.018
14-Oct-94	20	15	3	0.06	0.13	-0.1	5.1	1.4	0.22	0.13	1.2	2.1	0.16	0.28	0.01	0.09
15-May-95	34	21.1	4.2	0.0975	0.14	0.2	5.2	2.2	0.365	0.13	1.54	3.26	0.23	0.464	0.01	0.18
06-Dec-95	6	16.1	2.1	0.133	0.23	-0.1	5.2	1.7	0.219	0.082	1.26	2.57	0.19	0.288	L 0.0100	0.05
03-Jul-96	5	14.3	1	0.1	0.14	-0.6	5.2	1.4	0.2	0.084	1.11	2.25	0.15	0.24	L 0.0100	0.01

23-Oct-96	L 5.0000	15.7	0.8	0.08	0.17	0.03	5.3	1.5	0.21	0.08	1.04	2.32	0.17	0.29	L 0.0100	0.008
21-Jul-99	18	15.23	2.4	0.03	0.04	0.53	5.28	1.65	0.23	0.087	0.85	2.6	0.14	0.25	0.0067	0.084
15-Jul-00	6	17.2	0.7	0.12	0.16	-1	5.26	1.87	0.24	0.083	1.1	3	0.16	0.3	L 0.0500	0.0493

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:08:25

Unnamed Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
E	NF02YH0014	49 35 50	57 43 55

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
7	41	1	31	0.47

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.00	1.25	0	31.12	7.46

GEOLOGY	HELIKIAN QUARTZO-FELDSPATHIC GNEISS & SCHIST, AMPHIBOLITE, PSAMMITIC TO PELITIC GNEISS
SOILS	LITHIC REGO GLEYSOLS, LITHIC GLEYSOL ORTHIC REGOSOL
COVER	HEATH VEGETATION, UPLAND TUCKAMOOR, BALSAM FIR
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	KERATELLA COCHLEARIS, CYCLOPOID NAUPLII, CALANOID COPEPODS

Unnamed Lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
25-Sep-84	40	12.9	4.8	0.03	L 0.1000	-0.1	5.5	1	0.24	0.12	1	1.3	0.15	0.42	0.02	0.28
12-Jun-85	20	16	2.9	0.02	0.1	-0.3	5	1.2	0.25	0.11	1.7	2.3	0.16	0.5	0.01	0.29
25-Sep-85	10	14.9	3.4	L 0.0100	0.11	0.1	5.4	1.2	0.21	0.099	1.5	2.2	0.2	0.43	0.025	0.23
12-Jun-86	30	14	4.1	L 0.0100	L 0.1000	-0.1	5.2	1.3	0.19	0.09	1.9	2.2	0.15	0.33	0.02	0.25
24-Sep-86	30	15	3.8	L 0.0100	L 0.1000	0.1	5.2	1.3	0.22	0.1	1.8	2.1	0.16	0.41	0.03	0.36
09-Jun-87	35	18	3.4	L 0.0100	L 0.1000	0.4	5.5	1.5	0.25	0.1	1.6	3.3	0.15	0.42	0.02	0.31
20-Oct-87	30	20	4.3	L 0.0100	L 0.1000	-0.3	5	1.7	0.31	0.14	1.6	3	0.18	0.45	0.03	0.27
14-Jun-88	45	12.5	3.8	0.01	0.1	0.7	5.3	1.1	0.15	0.1	0.9	1.7	0.11	0.26	0.01	0.4
12-Oct-88	45	16	4.3	L 0.0100	L 0.1000	0.1	5.2	1.6	0.23	0.13	2	2.1	0.14	0.35	0.02	0.3
20-Jun-89	45	13	2.6	L 0.0100	0.2	-0.2	5.2	1.2	0.17	0.1	1.1	1.7	0.19	0.27	0.02	0.3

11-Oct-89	70	16	4.6	L 0.0100	0.22	-0.3	5	2.8	0.33	0.12	1.4	2.1	0.16	0.42	0.03	0.41
28-Jun-90	25	13.1	2.8	L 0.0100	0.09	-0.1	5.1	1	0.17	0.11	1.4	1.7	0.15	0.34	0.02	0.32
18-Oct-90	70	15	6.6	0.02	0.17	0.3	5.2	1.2	0.23	0.15	1.4	2	0.22	0.33	0.03	0.36
19-Jun-91	70	11	2.9	0.02	0.06	0.3	5.3	1	0.17	0.11	0.8	1.1	0.16	0.39	0.02	0.44
07-Oct-91	55	12	5.2	0.01	0.2	0.4	5.2	1.1	0.17	0.14	0.5	1.5	0.23	0.31	0.01	0.33
13-Jul-92	40	13	3.5	L 0.0100	0.33	0.9	5.8	1.2	0.12	0.11	0.5	1.8	0.21	0.24	0.01	0.23
26-Nov-92	60	15	5.5	L 0.0200		-0.1	5.2	1.3	0.26	0.19	1.4	2	0.2	0.51	0.02	0.31
16-Jun-93	40	10.4	2.8	0.01	0.14	-0.1	5.2	1	0.12	0.13	0.7	1.4	0.21	0.25	L 0.0100	0.17
27-Sep-93	75	11.4	4	0.01	0.18	0.1	5.1	0.96	0.21	0.15	1.1	1.3	0.17	0.39	0.01	0.35
21-Jun-94	30	12.4	4.1	L 0.0200	0.1	-0.2	5.1	0.8	0.17	0.1	1	1.6	0.2	0.26	0.02	0.29
14-Oct-94	45	14.7	6.3	L 0.0200	0.12	0.1	5	1.2	0.23	0.17	1.2	1.9	0.21	0.35	0.02	0.18
15-May-95	56	18.8	6.4	0.0499	0.11	-0.1	4.9	1.5	0.283	0.15	1.43	2.17	0.22	0.454	0.03	0.32
06-Dec-95	70	17.4	7.9	L 0.0200	0.08	-0.1	4.8	1.4	0.249	0.15	1.08	1.93	0.2	0.35	0.02	0.4

03-Jul-96	55	10.8	4.5	L 0.0200	0.1	-0.1	5.4	0.92	0.16	0.13	0.67	1.21	0.24	0.32	0.02	0.31
23-Oct-96	50	14.2	5.8	L 0.0200	0.13	0.2	5.4	1.2	0.2	0.14	0.69	1.59	0.27	0.38	0.02	0.25
21-Jul-99	21	13.18	2.8	L 0.0200	L 0.0100	0.47	5.25	1.3	0.19	0.086	0.8	2.11	0.14	0.32	0.016	0.154
15-Jul-00	39	13.1	3.4	L 0.0200	0.03	-1	5.1	1.22	0.18	0.109	0.75	1.9	0.13	0.3	0.27	0.195

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:09:37

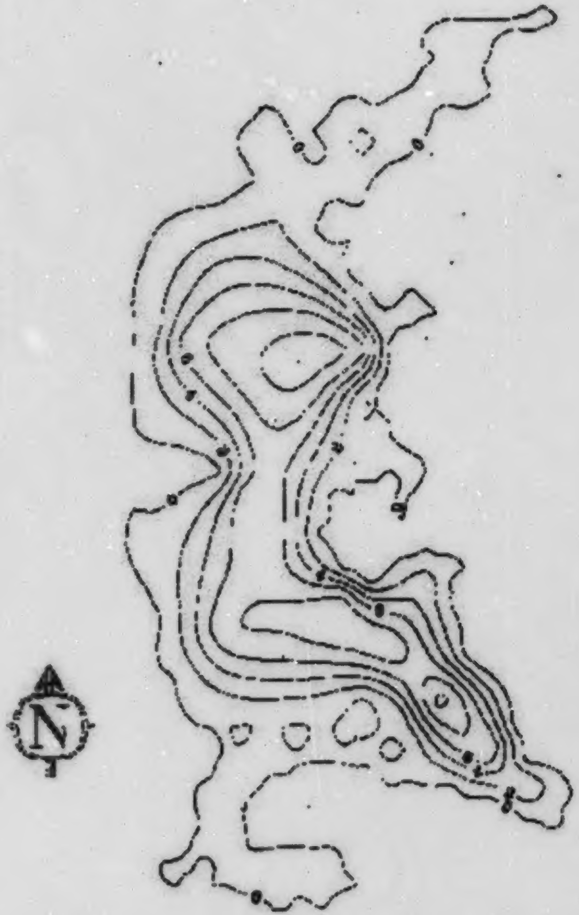
Unknown Pond

Drainage Basin	Station Number	Latitude	Longitude
Humber	NF02YK0006	48 47 45	57 39 35

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
351	102.29	14.20	3405070	5.84

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
12.00	1.80	1.00	10.86	3.33

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE
SOILS	ORTSTEIN FERRO-HUMIC PODZOL
COVER	SPHAGNUM BOG & BLACK SPRUCE FOREST
FISH	NOT SAMPLED
PHYTOPLANKTON	SYNURA UVELLA, COELOSPHAERIUM NAEGELIANUM, TABELLARIA FENESTRATA, HORMIDIUM KLEBSII
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA EURYPTERA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS



01NF02YK0006 UNNAMED LAKE

SCALE 1 cm. = 140 meters

2 meter contours

Unknown Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
04-Nov-80	60	29	10.5	L 0.0100	0.32	8	6.5	1.9	0.54	0.15	2.8	3.2	0.2	2.9	0.01	0.14
04-Oct-83	65	25	8.8	0.02	0.15	5.5	6.1	1.4	0.45	0.11	1.3	2	0.1	2.8	L 0.0100	0.07
06-Jun-84	60	18	6.5	L 0.0100	0.06	3.6	6.3	1	0.34	0.095	1	1.6	0.1	1.78	0.02	0.07
25-Sep-84	60	24	7.9	L 0.0100	L 0.1000	4.9	6.7	1.5	0.44	0.09	1.2	1.4	0.19	2.6	0.01	0.08
11-Jun-85	50	21	7.3	0.01	L 0.1000	3	6.4	1.5	0.35	0.11	1.2	2.4	0.16	2	0.01	0.1
24-Sep-85	15	28	5.5	L 0.0100	L 0.1000	5.8	6.7	1.7	0.47	0.068	2.1	2.5	0.2	2.8	L 0.0100	0.066
11-Jun-86	35	26	6	L 0.0100	L 0.1000		6.6	2.4	0.44	0.09	1.3	2.6	0.18	2.5	0.02	0.08
23-Sep-86	20	31	6.9	L 0.0100	L 0.1000	6.5	6.7	1.9	0.52	0.07	2.3	2.7	0.19	3.1	L 0.0100	0.09
11-Jun-87	35	28	5.5	L 0.0100	L 0.1000	4.7	6.8	1.9	0.45	0.077	1.5	3.1	0.19	2.6	L 0.0100	0.048
20-Oct-87	20	34	5.6	L 0.0100	L 0.1000	6.4	6.9	2.1	0.58	0.053	2.2	3.4	0.22	3.4	0.01	0.05

14-Jun-88	50	22	5.9	L 0.0100	L 0.1000	3.8	6.4	1.6	0.35	0.12	1.4	2.2	0.15	2	0.02	0.1
12-Oct-88	45	29	7.8	L 0.0100	L 0.1000	6.3	6.6	1.9	0.5	0.1	1.4	2.5	0.16	2.9	L 0.0100	0.06
20-Jun-89	40	25	4.3	L 0.0100	0.22	4.9	6.7	1.7	0.38	0.082	1.8	3.1	0.12	2.4	L 0.0100	0.05
10-Oct-89	70	27	7.3	0.02	0.25	5.3	6.6	2	0.58	0.11	1.5	2.5	0.21	2.9	0.01	0.11
25-Jun-90	30	23.6	5	L 0.0100	0.11	4.7	6.7	1.5	0.41	0.1	2	1.9	0.17	2.3	0.01	0.07
16-Oct-90	40	29	6.6	0.01	0.13	7.4	6.9	1.8	0.48	0.08	2	2.4	0.21	2.7	L 0.0100	0.09
17-Jun-91	70	21	6.8	0.01	0.13	5.1	6.7	1.5	0.37	0.14	1.5	1.6	0.14	2.1	0.02	0.09
08-Oct-91	80	22	10.1	L 0.0100	0.21	4.7	6.3	1.7	0.44	0.17	0.7	2.3	0.26	2.4	L 0.0100	0.17
04-Jun-92	45	21	5	L 0.0100	0.08	3.8	6.5	1.5	0.32	0.11	0.9	2.2	0.22	1.9	0.03	0.11
21-Oct-92	40	26	4.8	L 0.0100	0.15	6.9	6.9	1.8	0.5	0.08	1.3	2.5	0.26	2.7	L 0.0100	0.13
10-May-93	135	15	5.3	0.02	0.14	2.1	6.1	1.1	0.24	0.11	0.9	1.3	0.18	1.2	0.01	0.13
06-Oct-93	60	23	6.3	L 0.0200	0.18	5.9	6.6	1.7	0.42	0.087	1.57	1.5	0.19	2.7	0.01	0.09
23-Nov-94	40	26	8	L 0.0200	0.09	5.6	6.7	1.8	0.5	0.11	1.6	2.4	0.2	2.7	0.01	0.11

24-May-95	40	22	5.3	L 0.0200	0.12	4.8	6.4	1.5	0.37	0.11	1.1	1.8	0.19	2.1	0.05	0.13
20-Sep-95	55	23	8.3	L 0.0200	0.06	5.4	6.7	1.6	0.402	0.1	1.18	1.56	0.21	2.51	0.01	0.13
08-May-96	50	22	5.2	L 0.0200	0.07	4.9	6.7	1.4	0.38	0.1	1.04	1.81	0.19	2.32	0.03	0.11
02-Oct-96	40	27.6	7	L 0.0200	0.11	7	6.9	1.7	0.46	0.087	1.08	1.84	0.18	2.99	0.01	0.09
28-May-97	40	22	5.2	L 0.0200	0.1	4	6.5	1.51	0.37	0.094	0.91	2.32	0.17	2.04	0.02	0.1
19-Sep-97	50	22.8	6.9	L 0.0200	0.07	5.67	6.6	1.53	0.43	0.099	1.03	2.1	0.17	2.74	L 0.0100	0.08
07-May-99	43	19.8	5.4	L 0.0200	0.03	2.74	6.25	1.65	0.33	0.11	0.86	2.57	0.15	1.69	L 0.0100	0.1
10-May-00	50	21.2	6.3	0.02	0.08	3.44	6.49	1.73	0.36	0.122	1.15	2.53	0.15	1.82	0.114	0.0819

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:14:03

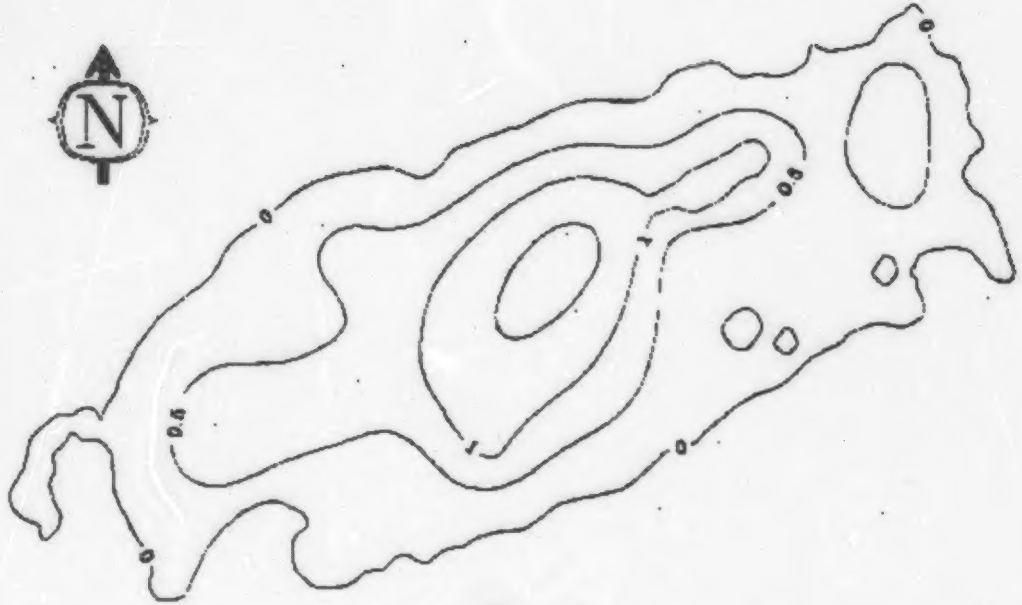
Unknown Pond

Drainage Basin	Station Number	Latitude	Longitude
Adied_Upper Humber	NF02YL0015	49 24 30	57 13 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
92	30.0	1.2	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.0	0.5	0.0	0.0

GEOLOGY	CONGLOMERATE, SANDSTONE, SILTSTONE, SHALE, LIMESTONE, GYPSUM, ANHYDRITE, SOME COAL
SOILS	TYPIC FIBRISOL, REGO GLEYSOL, TYPIC MESISOL, ORTHIC HUMO-FERRIC PODZOLS, TYPIC HUMISOLS
COVER	SPHAGNUM BOG AND BLACK SPRUCE FOREST
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SERTULARIA, EUASTRUM ELEGANS, SPIROGYRA VARIANS
ZOOPLANKTON	ASPLANCHNA PRIODONTO, KERATELLA TAUROCEPHALA, KELLICOTTIA LONGISPINA


N
0
0.5
1
0.5
1
0
0
0

Station no. NF02YL0015

UNNAMED LAKE

SCALE 1 cm. = 175 meters

0.5 meter contours

Unknown Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
10-Nov-80	70	28	15	L 0.0100	0.52	9.3	6.8	2.2	0.5	0.06	2.3	2.3	0.2	2.7	L 0.0100	0.18
04-Oct-83	40	28	7.9	L 0.0100	0.19	7.3	6.1	2	0.47	0.031	0.9	2.1	0.1	2.8	0.02	0.11
08-Jun-84	40	19	5.8	L 0.0100	0.07	4.6	6.3	1.1	0.31	0.016	1	1.7	0.1	1.83	L 0.0100	0.1
25-Sep-84	35	26	6.8	L 0.0100	0.13	6.3	6.7	2.2	0.44	0.025	1	1.7	0.15	2.6	0.01	0.05
11-Jun-85	20	24	4.7	L 0.0100	L 0.1000	4.8	6.8	1.9	0.4	0.02	1.7	2.7	0.14	2	0.01	0.13
25-Sep-85	5	31	6.7	L 0.0100	0.14	7.1	6.9	2.5	0.47	0.02	1.7	3	0.2	2.7	L 0.0100	0.065
11-Jun-86	30	24	6	L 0.0100	0.11	5.1	6.6	2	0.36	0.05	1.4	2.5	0.11	2	0.01	0.25
24-Sep-86	10	31	6.6	L 0.0100	0.1	7.3	6.6	2.6	0.49	0.014	2	3.1	0.16	2.7	L 0.0100	0.09
09-Jun-87	30	30	6.2	L 0.0100	L 0.1000	6.3	6.9	2.4	0.46	0.032	1.1	3.3	0.14	2.6	L 0.0100	0.22
20-Oct-87	10	36	6.2	L 0.0100	0.11	6.8	6.9	3.3	0.5	0.035	1.7	4.1	0.15	2.6	0.01	0.07

14-Jun-88	50	25	6.9	L 0.0100	0.1	5.3	6.6	2.1	0.38	0.045	1	2.2	0.14	2.2	L 0.0100	0.22
11-Oct-88	50	30	7.1	L 0.0100	0.1	7.7	6.6	2.6	0.52	0.03	1.2	2.8	0.14	2.8	0.02	0.13
20-Jun-89	40	27	5.8	L 0.0100	0.31	6.2	6.7	2.4	0.42	0.033	1	2.1	0.19	2.4	L 0.0100	0.17
11-Oct-89	50	30	6.9	0.01	0.36	7.4	6.8	2.8	0.54	0.028	1.3	2.7	0.21	2.7	0.02	0.1
28-Jun-90	30	27.4	5.4	L 0.0100	0.16	6.6	6.8	2.3	0.41	0.037	1.2	2.6	0.14	2.3	0.02	0.21
17-Oct-90	40	31	7.4	0.02	0.24	7.4	6.7	2.8	0.52	0.034	1.3	3	0.16	2.6	0.01	0.13
17-Jun-91	20	53	3.6	0.08	0.13	15.1	7.2	2.8	0.86	0.044	2.9	4.5	0.3	6.5	L 0.0100	0.05
19-Jun-91	45	20	4.6	L 0.0100	0.07	5.8	6.7	1.7	0.42	0.03	0.7	1.6	L 0.1000	2.1	L 0.0100	0.15
16-May-92	40	22	4.1	L 0.0100		4.9	6.3	1.9	0.29	0.028	0.5	2.4	0.21	1.8	0.04	0.22
26-Nov-92	70	30	8.7	L 0.0200		7.6	6.5	2.7	0.56	0.032	1	3.1	0.2	2.9	L 0.0100	0.14
10-May-93	120	24	5.1	0.02	0.13	6.8	6.5	1.8	0.36	0.027	0.7	1.9	0.28	2.34	0.1	0.46
23-Sep-93	215	15.6	8	L 0.0200	0.34	0.2	5.1	1.5	0.25	0.101	1.23	2	0.37	0.64	L 0.0100	0.28
14-Sep-94	30	27	8.5	L 0.0200	0.15	7.8	6.6	2	0.45	0.02	0.92	1.9	0.14	2.7	0.03	0.15

22-Nov-94	35	26	8.4	L 0.0200	0.15	6.1	6.8	2.2	0.45	0.04	0.8	2.2	0.15	2.6	0.01	0.14
24-May-95	45	20	5.4	L 0.0200	0.1	5.7	6.6	1.6	0.31	0.032	0.46	1.5	0.16	2	0.06	0.38
09-May-96	45	23	4.8	L 0.0200	0.08	7.2	6.6	1.6	0.33	0.044	L 0.5000	1.55	0.22	2.18	0.02	0.18
03-Oct-96	30	29.5	8	L 0.0200	0.16	8.4	6.8	2.2	0.48	0.03	0.6	1.84	0.16	3	0.02	0.12
28-May-97	80	24	8.3	L 0.0200	0.09	7	6.6	1.85	0.35	0.025	0.24	1.7	0.17	2.59	0.01	0.22
10-May-99	40	20.1	5.5	L 0.0200	0.05	4.82	6.55	1.77	0.31	0.097	0.34	2.09	0.1	1.95	0.06	0.6
18-May-00	39	18.3	4.8	L 0.0200	0.05	5	6.83	1.5	0.3	0.036	0.48	1.55	0.06	1.8	0.198	0.0763

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:16:13

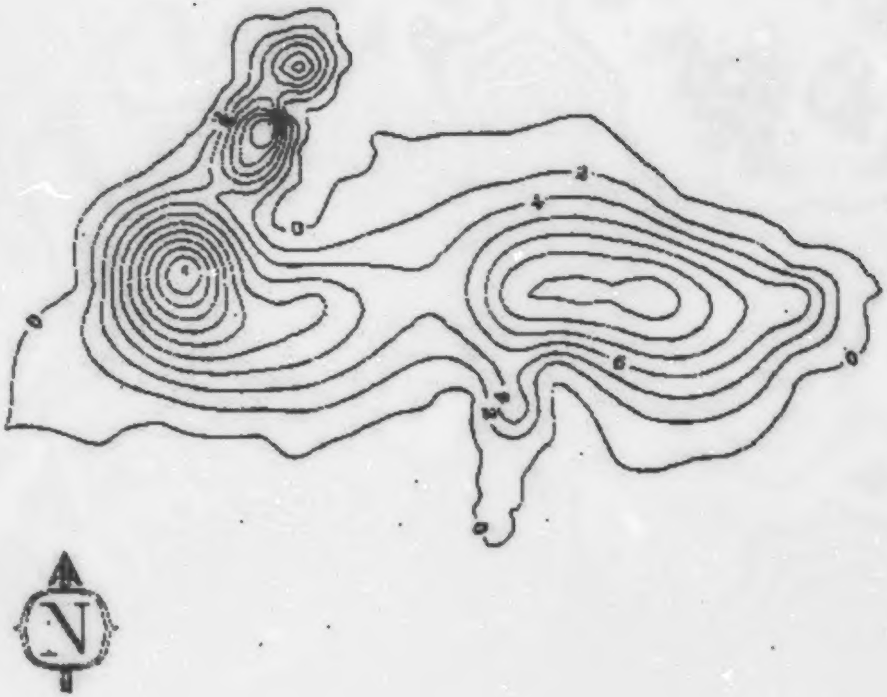
Unnamed Pond

Drainage Basin	Station Number	Latitude	Longitude
Whites	NF02YL0025	44 30 00	57 32 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
670	43.22	3.60	1916360	2.25

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.80	1.31	0.45	20.33	4.43

GEOLOGY	HELIKIAN QUARTZO-FELDSPATHIC GNEISS & SCHIST, AMPHIBOLITE, PSAMMITIC TO PELITIC GNEISS
SOILS	REGO GLEYSOL, LITHIC GLEYED ORTHIC DYSTRIC BRUNISOL
COVER	BALSAM FIR, HEATH
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	CONOCHILOIDES SP., CHONOCHILUS UNICORNIS, ASPLANCHNA PRIODONTO, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, CALANOID COPEPODS



Station no. NF02YL0025

SCALE 1 cm. = 100 meters

UNNAMED LAKE

2 meter contours

Unnamed Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
25-Sep-84	30	11.8	4.2	0.03	L 0.1000	-0.2	5.3	1	0.19	0.12	1.5	1.3	0.15	0.36	0.02	0.15
12-Jun-85	20	20	2.9	0.04	0.12	-0.3	5	1.6	0.3	0.11	1.9	3.1	0.16	0.4	0.02	0.21
25-Sep-85	5	16	2.6	L 0.0100	0.11	0.1	5.3	1.3	0.23	0.095	1.7	2.5	0.2	0.39	0.018	0.11
12-Jun-86	20	16	3.3	L 0.0100	L 0.1000	-0.3	5.1	1.4	0.23	0.1	1.62	2.5	0.13	0.35	0.01	0.17
24-Sep-86	15	15	3	L 0.0100	L 0.1000	0.1	5.3	1.5	0.22	0.1	2.2	2.5	0.15	0.39	0.02	0.14
09-Jun-87	30	17	3.1	0.03	L 0.1000	-0.1	5.1	1.9	0.32	0.12	1.3	3.8	0.14	0.45	0.01	0.22
20-Oct-87	25	20	4.2	L 0.0100	L 0.1000	-0.1	5.1	1.9	0.31	0.16	1.5	3.4	0.16	0.41	0.02	0.18
14-Jun-88	40	15	3.8	0.01	L 0.1000	0.4	5.2	1.4	0.2	0.11	1	2.3	0.11	0.31	0.01	0.26
12-Oct-88	40	16	4.3	L 0.0100	L 0.1000	-0.1	5.1	1.6	0.25	0.14	1.4	2.3	0.14	0.39	0.02	0.15
20-Jun-89	40	14	2.5	0.04	0.2	-0.1	5.1	1.4	0.19	0.11	1.1	1.9	0.26	0.3	0.01	0.2

11-Oct-89	50	16	4.2	L 0.0100	0.22	0.1	5.1	1.5	0.22	0.14	1.4	2	0.17	0.45	0.02	0.23
28-Jun-90	20	14.5	2.8	L 0.0100	0.09	-0.1	5.2	1.3	0.21	0.1	2.5	2	0.15	0.37	0.01	0.21
18-Oct-90	60	15	5.3	0.02	0.15	0.5	5.2	1.3	0.22	0.15	1.5	2.2	0.14	0.36	0.02	0.22
19-Jun-91	55	13	3.4	0.04	0.06	-0.1	5.2	1.1	0.17	0.14	1	1.7	0.1	0.34	0.03	0.3
07-Oct-91	50	12	4.7	0.02	0.16	0.1	5.2	1.1	0.16	0.13	0.5	1.5	0.14	0.34	0.02	0.24
13-Jul-92	35	12	2.9	0.01	0.08	-0.3	5.3	1.3	0.19	0.11	0.5	2	0.14	0.36	L 0.0100	0.08
26-Nov-92	70	14	4.3	L 0.0200		-0.8	5.1	1.4	0.26	0.16	1.2	1.9	0.17	0.63	0.02	0.23
16-Jun-93	50	17.3	4.5	L 0.0100	0.19	0.6	5.6	1.7	0.24	0.25	1.5	2.7	0.32	0.5	0.02	0.17
27-Sep-93	60	11	6	0.02	0.18	-0.1	5.2	1	0.16	0.17	1.1	1.3	0.16	0.34	L 0.0100	0.25
21-Jun-94	25	13.2	4	0.03	0.12	0.2	5.1	1	0.19	0.1	1.1	1.9	0.2	0.28	0.01	0.15
14-Oct-94	40	13.1	5	L 0.0200	0.11	-0.2	5.1	1.1	0.21	0.14	1.1	1.6	0.16	0.3	0.02	0.17
15-May-95	51	19.4	5.3	0.0519	0.11	0.3	4.9	1.7	0.301	0.18	1.21	2.62	0.23	0.471	L 0.0100	0.06
06-Dec-95	49	12.4	5.9	0.021	0.13	0.4	5.2	1.1	0.193	0.2	0.84	1.45	0.21	0.308	0.02	0.66

03-Jul-96	30	9.8	3.2	L 0.0200	0.05	1	5.4	0.91	0.16	0.124	0.69	1.16	0.15	0.3	L 0.0100	0.14
23-Oct-96	40	10	5.5	L 0.0200	0.06	0.14	5.36	0.99	0.2	0.24	0.7	1.41	0.17	0.51	0.01	0.11
21-Jul-99	20	16.15	2.9	L 0.0200	0.19	1.22	5.55	1.67	0.21	0.083	0.88	2.61	0.28	0.33	0.012	0.092
15-Jul-00	33	13.6	2.5	L 0.0200	0.04	-0.9	5.16	1.27	0.18	0.105	0.8	2.03	0.12	0.3	0.15	0.158

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Noble Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Green Bay	NF02YM0011	49 49 05	55 54 05

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
198	15.00	0.95	0.00	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.0	0.50	0.30	0.0	0.0

GEOLOGY	SILURIAN SEDIMENTARY & VOLCANIC ROCK
SOILS	VERY LITTLE, MUCH BARE ROCK
COVER	BLACK SPRUCE SHRUBS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	CHONOCHILUS UNICORNIS, CALANOID COPEPODS

Noble Pond Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
04-Nov-80	10	21	8.5	L 0.0100	0.15	4.7	6.4	2	0.45	0.13	2	3.6	0.2	0.7	L 0.0100	0.015
04-Oct-83	30	18	4.9	0.02	0.1	1.7	6	1.7	0.32	0.13	1.2	2.4	0.2	1	L 0.0100	0.029
25-Sep-84	5	18	3	0.02	L 0.1000	1.2	6.3	1.9	0.39	0.1	1.4	2.5	0.22	0.62	L 0.0100	L 0.0500
11-Jun-85	L 5.0000	18	2.8	0.04	L 0.1000	1.5	6.3	1.7	0.45	0.14	1.7	2.8	0.15	0.65	L 0.0100	0.013
25-Sep-85	L 5.0000	18	2.7	L 0.0100	L 0.1000	1.5	6.3	1.9	0.43	0.11	1.8	3	0.25	0.69	L 0.0100	0.006
11-Jun-86	L 5.0000	18	2.8	L 0.0100	L 0.1000		6.3	1.7	0.42	0.14	1.36	2.7	0.15	0.68	L 0.0100	0.01
24-Sep-86	5	19	2.4	L 0.0100	L 0.1000	1.7	6.3	1.8	0.42	0.13	1.7	3.1	0.21	0.72	L 0.0100	0.006
09-Jun-87	5	19	2.6	0.02	L 0.1000	1.4	6.3	1.7	0.45	0.11	1.4	2.9	0.15	0.72	L 0.0100	0.01
20-Oct-87	5	21	2.2	0.01	L 0.1000	1.7	6.4	1.8	0.46	0.1	1.3	3	0.18	0.71	L 0.0100	0.005
14-Jun-88	20	19	2.9	L 0.0100	L 0.1000	1.4	6.3	1.9	0.44	0.13	1.3	3	0.17	0.74	L 0.0100	0.015
11-Oct-88	5	20	2.2	L 0.0100	L 0.1000	1.9	6.3	2	0.48	0.1	1.6	3.2	0.16	0.77	L 0.0100	0.007
20-Jun-89	5	20	2.7	0.02	0.2	1.2	6.2	2.2	0.43	0.1	1.3	2.9	0.29	0.67	L 0.0100	0.011
11-Oct-89	5	21	2.1	0.03	0.14	1.9	6.3	2.2	0.5	0.1	1.4	3.3	0.21	0.75	L 0.0100	0.006
26-																

Jun-90	L 5.0000	20.3	2.3	L 0.0100	0.08	1.6	6.3	2.1	0.4	0.12	1.6	3.1	0.21	0.75	L 0.0100	0.011
18-Oct-90	L 5.0000	22	2.7	0.03	0.08	2	6.4	2.1	0.48	0.097	1.7	2.8	0.2	0.71	L 0.0100	0.006
19-Jun-91	20	19	2.7	0.03	0.05	1.9	6.3	2.1	0.54	0.12	1.4	3.1	0.14	0.73	L 0.0100	0.012

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Unknown Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Indian Brook	NF02YM0014	49 32 30	56 38 15

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
244	100.00	4.30	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
9.0	1.4	1.00	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, SYENITE, MONZONITE, & RELATED ROCK
SOILS	HUMO-FERRIC PODZOLS & GLEYED HUMO-FERRIC PODZOLS, GLEYSOLS, BRUNISOLS. ORGANIC SOILS IN BOGS & FENS
COVER	BLACK SPRUCE, BALSAM FIR, POORLY DECOMPOSED PEAT, HEATH COVERED BARRENS
FISH	NOT SAMPLED
PHYTOPLANKTON	TABELLARIA FLOCCULOSA, CYCLOTELLA MENEGHINIANA, MELOSIRA DISTANS, PLEUROTAENIUM TRABECULA
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, POLYARTHA MAJOR

Unknown Pond

SDATE	2011	2041	6107	7110	7601	10101	10301	11103	12107	13305	16304	17209	19103	20110	25304	26304
	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
04-Nov-80	50	17	10	L 0.0100	0.25	4.5	6.6	1.2	0.7	0.24	2.3	1.6	0.1	0.92	L 0.0100	0.18
18-Jun-83	40	16	5.7	L 0.0100	0.18	2	5.9	0.9	0.65	0.15	1.8	1.4	0.2	0.5	0.01	0.14
04-Oct-83	50	15	7.6	L 0.0100	0.12	2	5.9	0.9	0.56	0.16	2.2	1.3	0.1	0.8	L 0.0100	0.11
08-Jun-84	50	12.1	6.7	L 0.0100	0.05	1.7	6	0.6	0.52	0.16	1.8	1.1	0.1	0.63	L 0.0100	0.11
25-Sep-84	35	13.6	4.9	L 0.0100	L 0.1000	1.8	6.5	1	0.57	0.15	1.5	1	0.15	0.64	L 0.0100	0.11
11-Jun-85	40	14.2	6.7	0.01	L 0.1000	1.6	5.9	1	0.6	0.17	2	1.5	0.14	0.65	0.02	0.14
25-Sep-85	20	15	7.1	L 0.0100	L 0.1000	1.9	6.3	1.1	0.62	0.13	1.8	1.5	0.15	0.73	L 0.0100	0.11
11-Jun-86	35	14	6.6	L 0.0100	L 0.1000	1.7	6.2	1	0.63	0.15	1.66	1.6	0.14	0.66	L 0.0100	0.1
24-Sep-86	20	16	5.6	L 0.0100	L 0.1000	2.3	6.3	1.1	0.69	0.13	2	1.6	0.16	0.71	L 0.0100	0.11
09-Jun-87	40	15	6.2	L 0.0100	L 0.1000	1.7	6.2	0.9	0.62	0.16	2	1.4	L 0.1000	0.64	L 0.0100	0.08
20-Oct-87	25	16	5.2	0.01	L 0.1000	2.1	6.4	1.1	0.66	0.15	1.7	1.6	0.14	0.68	0.01	0.19
14-Jun-88	60	14	6.7	L 0.0100	L 0.1000	1.6	6.1	1	0.58	0.2	2	1.3	0.1	0.66	0.01	0.09
11-Oct-88	50	16	6	L 0.0100	L 0.1000	2.6	6.3	1.1	0.73	0.16	2.4	1.5	0.11	0.77	L 0.0100	0.11
20-Jun-																

89	55	16	6.4	L 0.0100	0.24	1.8	6.2	1.2	0.58	0.16	2.2	1.3	0.16	0.67	0.01	0.1
11-Oct-89	40	17	5.2	L 0.0100	0.22	2.6	6.3	1.5	0.69	0.11	1.3	1.5	0.18	0.83	L 0.0100	0.17
26-Jun-90	100	13.8	7.8	L 0.0100	0.12	1.6	5.7	1.2	0.29	0.24	1.2	1.2	0.13	0.81	L 0.0100	0.13
18-Oct-90	40	17	7.1	0.01	0.14	2.7	6.3	1.2	0.7	0.18	1.5	1.3	0.14	0.71	0.02	0.27
19-Jun-91	65	12	6	L 0.0100	0.07	2.2	6.1	0.9	0.54	0.2	0.8	1	0.1	0.62	0.02	0.2

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Unknown Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
West Brook	NF02YM0006	49 44 30	56 10 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
275	60.0	6.40	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
9.0	1.8	0.90	0.0	0.0

GEOLOGY	**SILURIAN VOLCANIC ROCK, PORPHYRIES & SHALLOW INTRUSIONS**
SOILS	**HUMO-FERRIC PODZOLS & GLEYED HUMO-FERRIC PODZOLS, GLEYSOLS, BRUNISOLS. ORGANIC SOILS**
COVER	**BLACK SPRUCE FOREST, 50% OF BASIN LOGGED APPROX 1985**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**ZYGNEMA PECTINATUM, CHLORELLA VULGARIS, COELASTRUM CAMBRICA**
ZOOPLANKTON	**CHONOCHILUS UNICORNIS, SYNCHAETA SP., KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS**

Unknown Pond

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
04-Nov-80	100	22	18.5	L 0.0100	0.37	2.17	6	1.5	0.43	0.32	2.8	2.3	0.3	1.8	0.02	0.29
04-Oct-83	75	22	9.8	0.01	0.15	3.1	5.9	1.6	0.32	0.18	1.1	2.2	0.4	2	L 0.0100	0.1
08-Jun-84	70	16	8.5	L 0.0100	0.05	2.3	6	0.7	0.31	0.19	1	1.6	0.3	1.33	0.02	0.12
25-Sep-84	35	20	7.2	L 0.0100	L 0.1000	3.1	6.6	1.5	0.35	0.12	1	1.6	0.35	1.8	0.01	0.09
11-Jun-85	60	19	8.3	0.04	0.12	2.1	6.1	1.6	0.4	0.23	1.1	2.1	0.5	1.6	0.05	0.19
25-Sep-85	25	22	8.2	L 0.0100	0.1	3.4	6.6	1.4	0.38	0.14	2.1	2.3	0.4	2	L 0.0100	0.083
11-Jun-86	40	20	7.7	L 0.0100	0.1	2.8	6.3	1.4	0.35	0.16	1	2.2	0.33	1.8	0.01	0.1
24-Sep-86	30	23	7.9	L 0.0100	L 0.1000	3.6	6.4	1.7	0.39	0.13	2.2	2.6	0.41	2.1	L 0.0100	0.09
09-Jun-87	55	19	7.8	L 0.0100	L 0.1000	2.5	6.4	1.3	0.33	0.19	1.1	2	0.27	1.7	0.02	0.08
20-Oct-87	25	24	6.3	0.01	L 0.1000	3.7	6.6	1.6	0.4	0.14	1.4	2.5	0.38	2.2	0.02	0.12

14-Jun-88	180	19	14	L 0.0100	0.1	0.8	5.1	1.5	0.45	0.31	0.6	2.1	0.24	0.89	0.04	0.43
11-Oct-88	50	23	7	L 0.0100	L 0.1000	3.9	6.4	1.7	0.39	0.16	1.4	2.3	0.43	2	0.02	0.08
20-Jun-89	60	23	7.5	L 0.0100	0.27	3	6.4	1.8	0.37	0.18	1.3	2.2	0.49	1.9	0.01	0.08
11-Oct-89	100	25	9.7	L 0.0100	0.32	3.6	6.2	2	0.48	0.26	1.4	2.6	0.61	2.1	0.01	0.18
26-Jun-90	50	21.4	8.3	L 0.0100	0.14	3.4	6.3	1.5	0.32	0.21	1.7	2.1	0.44	1.9	0.03	0.11
18-Oct-90	40	26	8.5	0.01	0.17	4.7	6.7	1.8	0.41	0.15	1.5	2.1	0.46	2.2	0.02	0.14
19-Jun-91	70	19	7.9	0.01	0.1	3.2	6.2	1.5	0.38	0.21	1	2.1	0.4	1.7	0.07	0.17

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Last Modified On: Wednesday, January 10, 2001 16:18:33

Unknown Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
South Brook	NF02YM0007	49 50 40	56 05 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
190	140.0	15.6	0.00	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
10.0	1.70	1.00	0.00	0.00

GEOLOGY	ORDOVICIAN GRANITES, DEVONIAN GRANODIORITE, SYENITE & RELATED ROCKS
SOILS	HUMO-FERRIC PODZOLS & GLEYED HUMO-FERRIC PODZOLS, GLEYSOLS, BRUNISOLS. ORGANIC SOILS
COVER	BLACK SPRUCE FOREST
FISH	NOT SAMPLED
PHYTOPLANKTON	APHANOCAPSA DELICATISSIMA, VLOTHRIX ZONATA, DICTOSPHAERIUM PULCELLUM, TETRASPORA LUBRICA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, DAPHNIA PULEX, CALANOID COPEPODS

Unknown Pond

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
04-Nov-80	G 100.0000	28	32.5	L 0.0100	0.62	0.21	5.2	1.9	0.76	0.7	5.3	3.6	1	1.2	0.05	0.88
04-Oct-83	220	24	35	0.04	0.23	1.1	5.2	1.7	0.63	0.5	0.8	2.1	0.5	1.3	0.03	0.62
08-Jun-84	160	16	14	L 0.0100	0.06	0.4	5	0.9	0.39	0.24	1	1.6	0.4	0.75	0.02	0.43
25-Sep-84	120	18	11	L 0.0100	0.12	0.8	5.5	1.6	0.45	0.23	1	2	0.4	0.84	0.01	0.24
11-Jun-85	140	20	16	L 0.0100	0.1	0.4	5	1.4	0.55	0.35	0.8	2.1	0.42	1.9	0.05	0.6
25-Sep-85	120	21	18	L 0.0100	0.13	0.9	5.4	1.6	0.59	0.31	1.3	2.6	0.41	1	0.014	0.33
11-Jun-86	120	20	14	L 0.0100	0.12	1	5.2	1.5	0.54	0.3	0.6	2.5	0.44	1	0.03	0.43
24-Sep-86	160	23	16	L 0.0100	0.1	1.3	5.4	1.9	0.67	0.42	0.8	3.2	0.44	1.2	0.01	0.38
09-Jun-87	130	19	12	L 0.0100	L 0.1000	0.8	5.2	1.4	0.48	0.26	1.6	2.6	0.24	0.9	0.03	0.38
20-Oct-87	120	24	12	0.03	L 0.1000	0.9	5.4	1.9	0.62	0.35	1.1	3.2	0.32	1.1	0.02	0.3

14-Jun-88	70	19	8	L 0.0100	L 0.1000	2	6.2	1.4	0.32	0.21	1.2	1.9	0.44	1.5	0.05	0.11
11-Oct-88	160	23	12	0.05	0.1	1.2	5.2	1.8	0.62	0.36	0.9	2.8	0.28	1.1	0.02	0.33
20-Jun-89	200	24	14	L 0.0100	0.36	1	5.3	2	0.6	0.33	0.83	2.8	0.38	1.1	0.03	0.43
11-Oct-89	160	24	10	L 0.0100	0.32	1.4	5.4	2.8	0.71	0.34	1.2	3.5	0.47	1.1	0.02	0.37
26-Jun-90	100	23.4	8.7	L 0.0100	0.17	2.7	5.9	2.1	0.5	0.26	1.6	2.8	0.24	1.7	0.04	0.27
26-Jun-90	90	23.4	8	L 0.0100	0.18	2.8	5.9	2.1	0.5	0.27	1.5	2.7	0.24	1.7	0.04	0.27
18-Oct-90	190	26	17.4	0.01	0.28	1	5.2	2.2	0.68	0.41	1.4	2.8	0.36	1.2	0.02	0.44
19-Jun-91	200	19	13.8	L 0.0100	0.14	1.2	5.1	1.6	0.56	0.34	0.6	2.2	0.31	0.99	0.04	0.55

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Sandy Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Buchans	NF02YN0008	48 49 05	56 56 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
305	109.71	16.3	1155510	12.7

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.5	1.5	0.80	4.93	1.05

GEOLOGY	SILURIAN SANDSTONE, CONGLOMERATE, GREYWACKE, SHALE, LIMESTONE
SOILS	ORSTEIN FERRO-HUMIC PODZOLS, TERRIC MESISOLS
COVER	SPHAGNUM BOGS AND BLACK SPRUCE FOREST APPROX. 50-50%
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION DIVERGENS, PERIDINIUM INCONSPICUUM, FRAGILLARIA CONSTRUENS
ZOOPLANKTON	TRICHOCERCA CYLINDRICA, KERATELLA TAUROCEPHALA

Sandy Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
08-Nov-80	70	19	12.5	L 0.0100	0.31	3.8	6.1	1.1	0.34	0.05	2.3	2	0.2	1.8	0.01	0.06
17-Jun-83	20	28	5.7	L 0.0100	0.19	8.6	6.3	0.9	0.35	0.04	1	1.2	L 0.1000	3.7	L 0.0100	0.1
04-Oct-83	35	32	7.6	0.02	0.19	10.5	6.1	1	0.34	0.068	1.1	1.2	0.1	5	0.04	0.24
06-Jun-84	55	12.5	7.3	L 0.0100	0.08	2.3	6.1	0.5	0.24	0.09	1	0.8	0.1	1.33	L 0.0100	0.13
25-Sep-84	80	20	9.9	L 0.0100	0.12	3.9	6.4	1	0.4	0.15	L 1.0000	1	0.1	2.5	0.02	0.25
11-Jun-85	55	12.9	8.2	L 0.0100	0.1	1.8	6.1	0.9	0.25	0.11	0.8	0.9	L 0.1000	1.3	L 0.0100	0.11
24-Sep-85	15	25	7.7	L 0.0100	0.14	6.3	6.7	1.2	0.47	0.063	2	1.4	0.1	3	0.01	0.14
12-Jun-86	30	19	8	L 0.0100	0.11	3.4	6.5	1.1	0.31	0.09	1.88	1.5	0.15	2	0.02	0.15
23-Sep-86	30	29	8.3	L 0.0100	0.13	7.4	6.7	1.4	0.55	0.1	2	1.6	0.11	3.5	0.02	0.23
09-Jun-87	30	18	6.1	L 0.0100	L 0.1000	3	6.4	1.2	0.3	0.072	1.2	1.5	L 0.1000	1.7	L 0.0100	0.1

21-Oct-87	35	30	9	L 0.0100	0.11	5.6	6.8	1.5	0.55	0.12	2.3	2.4	0.15	3.5	0.01	0.13
15-Jun-88	60	16	7.8	L 0.0100	0.1	3	6.5	1	0.29	0.1	0.9	0.9	L 0.1000	1.7	L 0.0100	0.13
12-Oct-88	50	26	8.7	L 0.0100	0.11	5.9	6.6	1.3	0.5	0.075	1	1.9	0.14	3.1	L 0.0100	0.13
20-Jun-89	40	19	5.3	L 0.0100	0.31	4.3	6.5	1.1	0.33	0.065	1.2	1.2	L 0.1000	2	L 0.0100	0.09
10-Oct-89	70	24	7.3	L 0.0100	0.31	5.1	6.6	1.5	0.4	0.14	1	2.2	0.14	2.8	0.04	0.23
25-Jun-90	20	17.4	5.3	L 0.0100	0.16	3.4	6.5	1.1	0.28	0.082	1.3	1	L 0.1000	1.6	0.01	0.1
17-Oct-90	70	25	9.1	L 0.0100	0.21	6	6.7	1.3	0.52	0.11	1.6	1.4	0.13	3	0.01	0.19
17-Jun-91	55	15	6.3	L 0.0100	0.16	3	6.3	1	0.24	0.1	1.1	0.7	L 0.1000	1.5	L 0.0100	0.12
04-Jun-92	50	12	5.4	L 0.0100	0.14	2.3	6.1	0.75	0.15	0.093	L 0.5000	0.8	0.1	1.2	0.01	0.15
21-Oct-92	60	20	6.6	L 0.0100	0.2	5	6.6	1.1	0.44	0.13	1	2	0.21	2.2	0.01	0.23
06-May-93	60	11	5.7	L 0.0100	0.11	1.3	5.9	0.61	0.16	0.11	0.5	0.7	0.14	0.91	0.05	0.2
04-Oct-93	40	25	7.1	L 0.0200	0.25	8.1	7	1.2	0.45	0.065	1.2	1.4	0.12	3.8	0.01	0.17
23-Nov-94	45	19.6	6.8	0.02	0.08	3.4	6.4	1.2	0.38	0.11	1.3	1.8	0.08	2	0.02	0.16

08-May-95	60	9.9	6.4	L 0.0200	0.09	1.4	5.6	0.7	0.17	0.072	0.44	0.75	0.13	0.93	0.02	0.15
19-Sep-95	190	23	22.9	L 0.0200	0.13	3.4	5.5	1.1	0.43	0.34	0.46	1.16	0.13	3.23	0.05	0.27
06-May-96	25	12.4	3.5	L 0.0200	0.05	2.6	6.5	0.81	0.2	0.2	0.78	0.96	0.13	1.29	0.05	0.29
01-Oct-96	35	24.5	8.5	L 0.0200	0.13	5.7	6.8	1.1	0.43	0.083	1.19	1.2	0.09	2.89	L 0.0100	0.13

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Tally Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Noel Paul	NF02YO0089	48 36 35	56 29 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
290	289.83	11.20	2898270	3.09

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
10.0	5.0	1.20	2.38	0.79

GEOLOGY	SILURIAN SANDSTONE, CONGLOMERATE, GREYWACKE, SHALE, LIMESTONE
SOILS	GLEYED HUMO-FERRIC PODZOLS, ORTHIC HUMO-FERRIC PODZOLS
COVER	MOSTLY BLACK SPRUCE WITH SOME POPLAR AND BEECH
FISH	NOT SAMPLED
PHYTOPLANKTON	COELOSPHAERIUM NAEGELIANUM, MOUGEOTIA VIRIDIS, VLOTHRIX ZONATA, DICTOSPHAERIUM PULCELLUM
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, KELLICOTTIA LONGISPINA

Tally Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
08-Nov-80	5	19	7.5	L 0.0100	0.19	6.3	6.5	1.1	0.35	0.06	1.8	1.7	0.1	1.6	0.02	0.08
04-Oct-83	10	16	5	L 0.0100	0.12	3	6	0.9	0.31	0.035	1.5	1.3	0.1	1.5	0.01	0.033
06-Jun-84	10	13.5	4.4	L 0.0100	0.06	2.8	6.3	0.5	0.3	0.041	1.3	1.1	0.1	1.23	L 0.0100	0.02
25-Sep-84	20	21	4.4	L 0.0100	L 0.1000	2.9	6.7	1	0.31	0.04	1.2	0.8	0.1	1.3	0.01	L 0.0500
11-Jun-85	5	14.7	4.7	L 0.0100	L 0.1000	2.7	6.5	0.9	0.3	0.04	1.6	1.2	L 0.1000	1.3	L 0.0100	0.042
24-Sep-85	L 5.0000	16	3.3	L 0.0100	0.1	3.1	6.6	0.9	0.32	0.023	1.5	1.3	0.1	1.4	0.01	0.018
12-Jun-86	L 5.0000	15	4.1	L 0.0100	L 0.1000	2.8	6.4	1	0.32	0.03	1.25	1.5	0.1	1.4	L 0.0100	0.02
23-Sep-86	5	17	3.7	L 0.0100	L 0.1000	3.2	6.4	1	0.34	0.037	1.2	1.6	L 0.1000	1.4	0.02	0.04
09-Jun-87	5	16	4	L 0.0100	L 0.1000	2.7	6.6	0.9	0.33	0.032	1.1	1.2	L 0.1000	1.4	L 0.0100	0.024
21-Oct-87	L 5.0000	17	3.1	L 0.0100	L 0.1000	3.1	6.5	1	0.35	0.029	1.3	1.3	0.1	1.4	0.01	0.026

15-Jun-88	10	17	4.1	L 0.0100	L 0.1000	2.9	6.5	1.1	0.35	0.044	1.3	1.4	L 0.1000	1.5	0.01	0.05
12-Oct-88	5	18	4.3	L 0.0100	L 0.1000	3.5	6.5	1.1	0.38	0.023	1.7	1.5	L 0.1000	1.6	0.01	0.036
20-Jun-89	5	19	3.1	L 0.0100	0.26	3.6	6.6	1.1	0.36	0.036	1.8	2.3	L 0.1000	1.6	0.01	0.027
10-Oct-89	20	21	4	L 0.0100	0.28	4	6.6	1.5	0.36	0.039	1.6	1.6	0.13	1.7	0.02	0.05
25-Jun-90	10	19.9	6.4	L 0.0100	0.19	4.5	6.6	1.2	0.48	0.061	1.8	0.94	L 0.1000	1.9	0.02	0.09
16-Oct-90	10	19	3.5	L 0.0100	0.13	3.9	6.7	1.3	0.42	0.028	2	1.8	0.14	1.6	0.02	0.03
17-Jun-91	20	17	3.7	L 0.0100	0.12	3.6	6.6	1.1	0.32	0.044	1.5	1.3	L 0.1000	1.4	L 0.0100	0.06
04-Jun-92	10	15	3	L 0.0100	0.1	3	6.6	1.1	0.25	0.052	1	1.1	0.1	1.3	0.02	0.05
21-Oct-92	10	16	3.2	L 0.0100	0.12	3.5	6.6	1.1	0.39	0.057	2.2	2	0.16	1.4	0.01	0.06
06-May-93	40	15	3.4	0.03	0.13	2.7	6.4	0.96	0.3	0.049	1.1	1.1	0.12	1.2	L 0.0100	0.036
04-Oct-93	20	15.2	3.9	L 0.0200	0.15	3.6	6.7	0.96	0.27	0.034	1.26	1.6	0.11	0.92	0.01	0.05
23-Nov-94	10	15.1	4.9	L 0.0200	0.08	3.5	6.5	1	0.37	0.035	1.1	1	0.1	1.5	0.01	0.029
08-May-95	20	15	5.7	0.03	0.12	2.9	6.2	1	0.34	0.059	1.1	1.2	0.11	1.4	L 0.0100	0.032

19-Sep-95	20	14.9	5.8	L 0.0200	0.05	3.3	6.5	0.97	0.341	0.039	1.14	0.93	0.11	1.39	0.02	0.05
06-May-96	25	16.3	4.2	L 0.0200	0.04	3.6	6.6	1.1	0.39	0.054	0.94	1.14	0.12	1.59	0.03	0.07
01-Oct-96	30	18.4	6.5	L 0.0200	0.11	3.8	6.5	1.1	0.39	0.083	0.79	1.28	0.1	1.66	0.05	0.15

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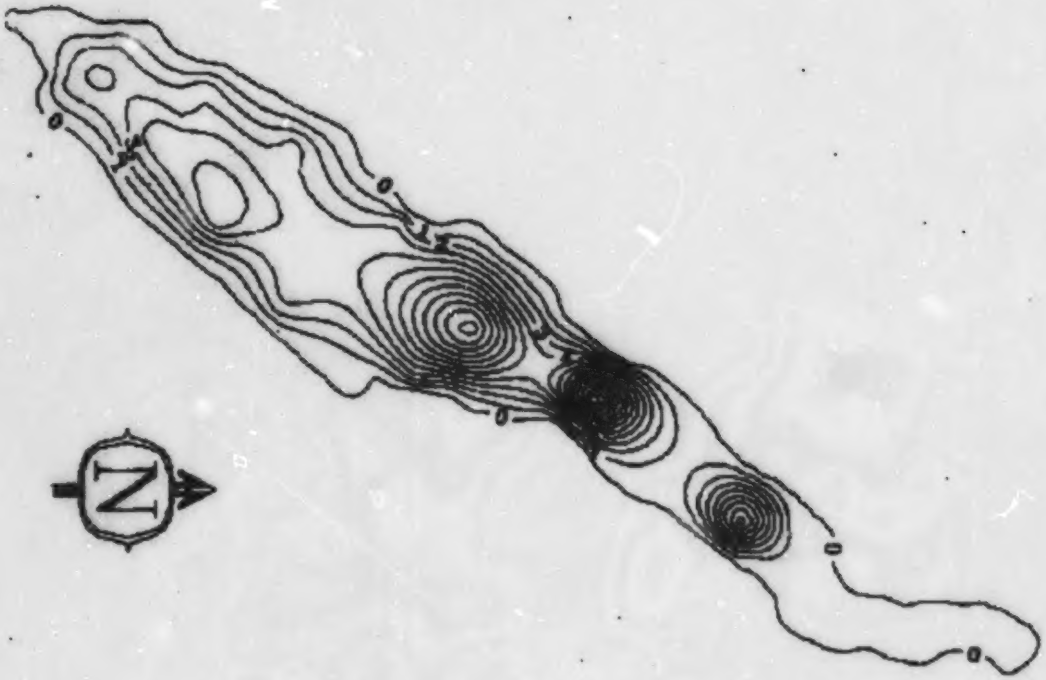
Bellman's Pond

Drainage Basin	Station Number	Latitude	Longitude
Gander	NF02YQ0022	49 10 50	54 39 10

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
46.0	382.87	29.8	9943570	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
14.84	5.79	1.09	14.00	2.60

GEOLOGY	**ORDOVICIAN SILTSTONE, QUARTZITE, LIMESTONE, SLATE, GREYWACKE, SANDSTONE**
SOILS	**GLEYED HUMO-FERRIC PODZOLS**
COVER	**BALSAM FIR, MOUNTAIN MAPLE, BLACK SPRUCE, WHITE BIRCH**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**MERISMOPEDIA PUNCTATA, COELASTRUM CAMBRICA**
ZOOPLANKTON	**ASPLANCHNA PRIODONTO, KERATELLA CRASSA, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, BOSMINA LONGIROSTRIS**



BELLMANS POND

1 meter contours

SCALE 1 cm. = 400 meters

Bellman's Pond Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
08-Nov-80	30	30	10	L 0.0100	0.26	6.3	6.8	2.6	0.72	0.05	2	3.7	0.2	1.7	0.02	0.06
17-Jun-83	10	29	4.9	0.02	0.19	4.4	6.2	2.2	0.7	0.048	1	3.8	0.2	1.5	0.01	0.05
04-Oct-83	15	27	6.3	L 0.0100	0.14	4.8	6.2	2.4	0.69	0.03	0.9	3.5	0.2	1.7	0.01	0.033
06-Jun-84	30	25	5.8	0.02	0.08	3.4	6.3	1.8	0.6	0.034	1.3	3.4	0.3	1.38	0.01	0.05
26-Sep-84	15	27	5.5	L 0.0100	0.11	4.3	6.6	2.5	0.65	0.025	1.2	3.2	0.27	1.6	0.01	L 0.0500
11-Jun-85	10	27	5.1	L 0.0100	0.11	4.6	6.7	2.2	0.75	0.03	1.6	3.7	0.25	1.6	0.02	0.051
24-Sep-85	5	28	5.6	L 0.0100	0.12	5.1	6.8	2.4	0.75	0.032	1.5	3.7	0.3	1.8	0.02	0.022
12-Jun-86	15	27	5.5	L 0.0100	0.12	4.4	6.6	2.2	0.71	0.03	1.25	3.5	0.23	1.7	0.01	0.04
23-Sep-86	10	29	4.9	L 0.0100	L 0.1000	4.9	6.5	2.4	0.72	0.018	1.2	4	0.31	1.7	0.01	0.026
11-Jun-87	20	26	5.2	L 0.0100	L 0.1000	4.2	6.7	2.1	0.68	0.032	1.1	3.6	0.19	1.6	0.01	0.032
21-Oct-87	5	29	4.2	L 0.0100	L 0.1000	4.6	6.8	2.3	0.71	0.018	1.2	3.2	0.23	1.7	0.01	0.016
15-Jun-88	30	27	5.4	L 0.0100	0.11	3.8	6.3	2.4	0.73	0.052	1.4	3.5	0.2	1.6	0.02	0.05
11-Oct-88	10	29	4.7	0.01	L 0.1000	4.8	6.6	2.5	0.75	0.02	2	2.5	0.2	1.7	0.02	0.04
22-	20	30	4.7	0.01	0.22	4.4	6.7	2.1	0.7	0.031	1.5	3.7	0.26	1.8	0.01	0.027

Jun-89																
11-Oct-89	10	31	4	L 0.0100	0.25	4.9	6.6	2.8	0.69	0.013	1.6	4.2	0.22	1.8	0.03	0.044
26-Jun-90	30	27.5	6.6	0.07	0.26	4.4	6.5	2.1	0.65	0.067	1.8	3.3	0.23	1.8	0.01	0.07
17-Oct-90	30	29	5.9	L 0.0100	0.21	4.9	6.8	2.5	0.77	0.035	1.8	2.9	0.28	1.7	0.03	0.046
18-Jun-91	35	24	6	0.06	0.22	4	6.4	2.3	0.6	0.063	1.3	2.7	0.19	1.5	0.02	0.08

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Spruce Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Little Gull	NF02YQ0021	48 19 00	55 28 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
230	3.00	1.26	0.00	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
0.86	0.35	0.12	0.00	0.00

GEOLOGY	ORDOVICIAN SLATE, GREYWACKE, ACIDIC TO MAFIC VOLCANIC ROCKS, QUARTZITE, CHERT, LIMESTON
SOILS	GLEYSOLS, GLEYED & ORTHIC HUMO-FERRIC PODZOLS & FERRO-HUMIC PODZOLS. ORGANIC SOILS IN BOGS & FENS
COVER	MOSTLY BOG WITH SOME BLACK SPRUCE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Spruce Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
11-Jun-87	30	32	5.8	L 0.0100	L 0.1000	3.4	6.6	2.6	0.68	0.035	3.1	4.4	0.29	1.8	L 0.0100	0.1
15-Jun-88	45	31	6.4	L 0.0100	0.1	3.5	6.5	2.7	0.75	0.058	2	4.1	0.28	1.8	0.01	0.14
12-Oct-88	40	41	6.6	L 0.0100	0.11	6.6	6.6	3.1	1.1	0.057	3.4	4.9	0.23	3	0.01	0.16
21-Jun-89	30	37	5	L 0.0100	0.24	4.1	6.6	2.3	0.73	0.042	2.1	4.8	0.31	2.1	L 0.0100	0.16
10-Oct-89	100	38	8.3	0.02	0.34	5.5	6.6	3.2	0.97	0.078	2.5	4.6	0.29	3	0.04	0.28
27-Jun-90	35	30.3	6.4	L 0.0100	0.15	4.8	6.4	2.4	0.56	0.047	2.7	3.2	0.27	2.7	0.02	0.17
16-Oct-90	90	37	9.2	0.01	0.23	6.1	6.6	2.9	0.83	0.08	3	4.1	0.27	2.8	0.01	0.25
17-Jun-91	40	28	5	L 0.0100	0.13	3.6	6.5	2.7	0.56	0.046	2.3	3.8	0.18	1.5	L 0.0100	0.1
26-May-92	20	26	3.4	L 0.0100	0.09	2.8	6.4	2.7	0.42	0.06	1.2	4.3	0.37	1.1	L 0.0100	0.16
12-Nov-92	70	31	8.2	0.03	0.16	4.1	6.5	2.6	0.76	0.11	2.5	4	0.24	2.5	0.02	0.26

25-May-93	40	34	5	0.01	0.14	4.1	6.5	4.1	0.91	0.073	2.1	6.2	0.25	1.4	0.01	0.14
26-Oct-93	60	32	11.9	L 0.0200	0.21	5.6	6.6	2.9	1.04	0.13	2.3	4.2	0.21	2.29	0.07	0.34
12-May-94	45	25	7	L 0.0200	0.07	2.3	6.2	2.6	0.52	0.072	1.5	3.5	0.2	1.2	0.01	0.13
15-Nov-94	60	32	10.3	0.03	0.15	4.3	6.3	2.7	0.81	0.1	2.4	4	0.21	2.5	0.02	0.24
08-May-95	55	26	6.3	0.03	0.09	2.8	6.1	3.2	0.57	0.086	1.3	4.1	0.18	1.1	0.06	0.41
19-Sep-95	45	31	9.2	L 0.0200	0.09	6	6.7	2	0.52	0.044	3.48	2.27	0.2	3.57	0.01	0.15
06-May-96	35	32	4.8	L 0.0200	0.06	3.6	6.5	2.1	0.41	0.07	4.36	3.32	0.28	3.19	0.05	0.25
01-Oct-96	35	58.7	8.2	0.03	0.15	7.1	6.9	3.4	0.81	0.052	8.06	4.87	0.2	5.59	0.04	0.2
12-May-97	L 5.0000	3.15	L 0.5000	L 0.0200	0.03	-0.14	5.4	0.12	L 0.0500	L 0.0100	L 0.5000	0.3	L 0.0500	L 0.1000	L 0.0100	0.008

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:04:39

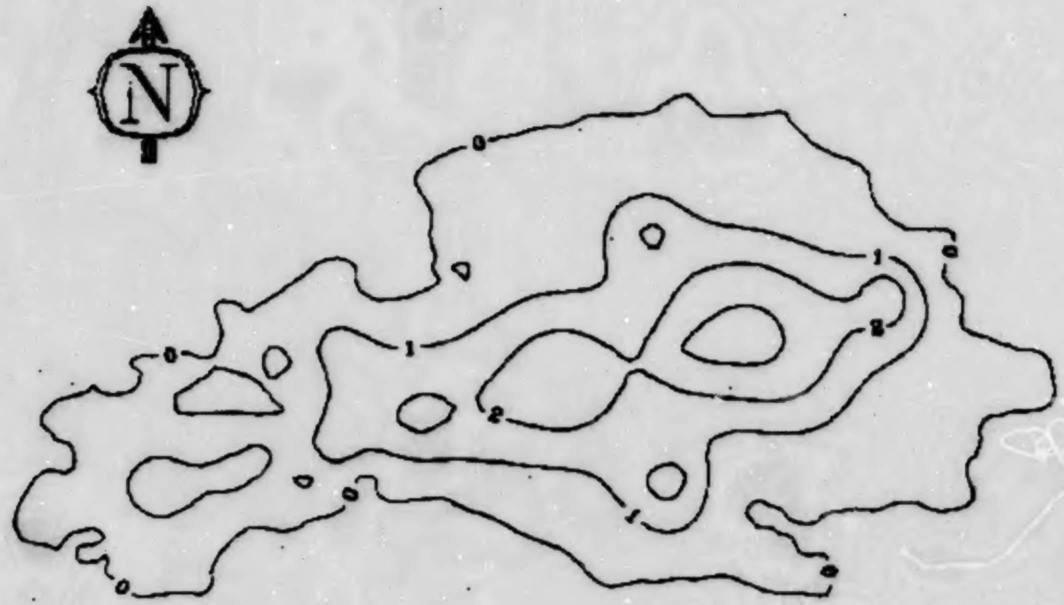
Unknown Pond

Drainage Basin	Station Number	Latitude	Longitude
Ragged	NF02YR0005	49 12 05	54 08 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
92	118.1	4.70	1017600	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
7.02	2.00	0.96	3.3	0.86

GEOLOGY	ORDOVICIAN SILTSTONE, QUARTZITE, SLATE, GREYWACKE
SOILS	ORTHIC & GLEYED HUMO-FERRIC PODZOLS, ROCK LAND
COVER	MOSTLY SPHAGNUM BOG, & OLD BURNT OVER FOREST (1960'S) WITH BLACK SPRUCE & SOME BALSAM FIR
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SOCIALE, ASTERIONELLA FORMOSA, CHLORELLA VULGARIS, TETRASPORA LUBRICA, GLOEOCYSTIS PLANKTONICA
ZOOPLANKTON	CONOCHILOIDES SP., CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, POLYARTHA EURYPTERA, CALANOID COPEPODS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01NF02YR0005 UNNAMED LAKE

SCALE 1 cm. = 150 meters

1 meter contours

Unknown Pond

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
08-Nov-80	100	24	15	L 0.0100	0.26	0.29	5.4	2.4	0.59	0.32	3	3.6	0.2	0.62	0.02	0.52
18-Jun-83	100	22	6.2	0.02	0.19	0.4	5.3	1.9	0.5	0.21	1	3.4	0.1	0.35	0.02	0.34
04-Oct-83	100	22	9.6	0.01	0.16	0.6	5.4	2.4	0.53	0.19	1.1	3.4	0.1	0.6	0.01	0.3
06-Jun-84	90	21	7.8	L 0.0100	0.07	0.4	5.2	1.9	0.5	0.14	1	3.5	0.2	0.5	0.02	0.32
26-Sep-84	90	24	8.2	L 0.0100	0.11	0.3	5.2	2.7	0.56	0.16	1	4.1	0.19	0.58	0.01	0.32
11-Jun-85	70	19	6.3	L 0.0100	L 0.1000	0.3	5.3	1.9	0.4	0.17	0.9	3.2	0.14	0.45	0.03	0.29
24-Sep-85	55	21	9.4	L 0.0100	0.1	0.5	5.4	2.2	0.52	0.19	0.6	3.6	0.15	0.55	0.011	0.27
12-Jun-86	60	21	7.2	L 0.0100	0.1	0.4	5.3	2.1	0.49	0.19	1	3.5	0.11	0.48	0.02	0.31
23-Sep-86	90	24	9.9	L 0.0100	L 0.1000	0.6	5.2	2.5	0.57	0.18	1.1	4.3	0.15	0.6	0.02	0.29
11-Jun-87	70	19	6.2	L 0.0100	L 0.1000	0.5	5.3	1.8	0.42	0.15	0.7	3.3	0.1	0.45	0.02	0.26
21-Oct-87	70	22	2	L 0.0100	L 0.1000	0.1	5.5	2.3	0.45	0.22	1.8	4.1	0.14	0.45	0.01	0.31
15-Jun-88	100	22	6.7	L 0.0100	L 0.1000	0.7	5.2	2.1	0.53	0.16	1.2	4.9	0.14	0.5	0.03	0.27
11-Oct-88	60	24	6.4	0.01	L 0.1000	0.5	5.3	2.6	0.59	0.13	1.2	4.2	0.16	0.51	0.01	0.24
22-	60	21	5.2	L 0.0100	0.16	0.1	5.4	2.5	0.47	0.13	1.2	3.5	0.19	0.47	0.01	0.17

Jun-89																
11-Oct-89	180	26	7.7	L 0.0100	0.27	0.8	5.3	2.8	0.54	0.21	1.4	4.3	0.18	0.71	0.04	0.4
26-Jun-90	80	17.2	7.2	L 0.0100	0.11	0.8	5.4	1.8	0.38	0.18	1.2	2.6	0.1	0.47	0.02	0.25
17-Oct-90	90	22	8.5	L 0.0100	0.16	0.9	5.3	2.3	0.55	0.18	1.5	3.3	0.18	0.47	L 0.0100	0.29
18-Jun-91	110	18	7.7	L 0.0100	0.15	0.8	5.2	1.7	0.36	0.18	0.8	2.2	0.11	0.44	0.01	0.34

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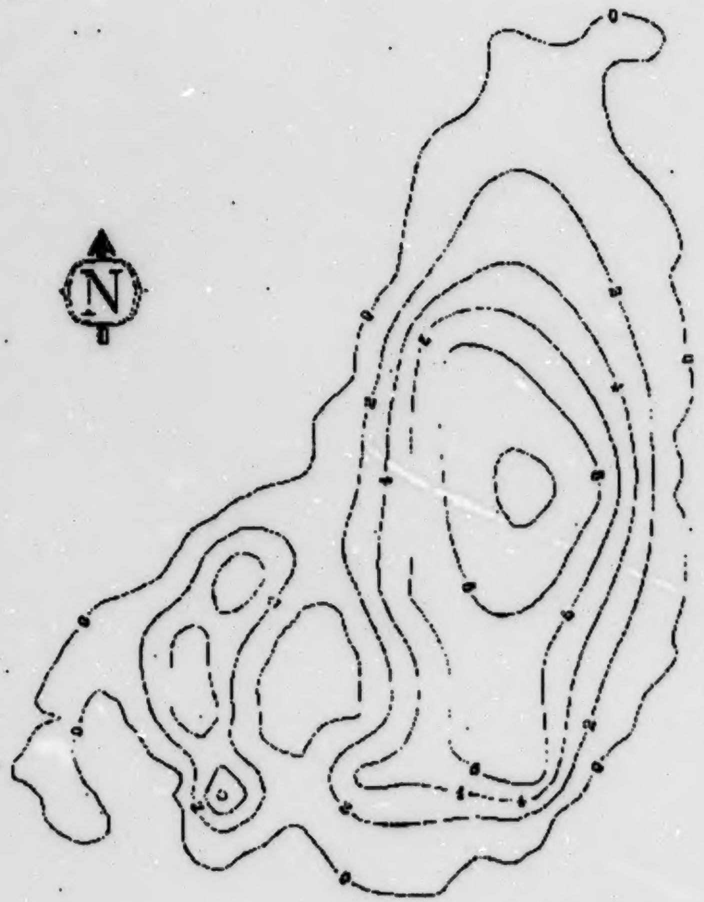
Big Pond

Drainage Basin	Station Number	Latitude	Longitude
Le Poile	NF02ZB0010	47 50 55	58 13 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
320	84.14	3.30	2851860	1.62

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.3	1.40	1.20	10.26	3.39

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE
SOILS	VERY THIN GLEYSOLS, GLEYED & ORTHIC HUMO-FERRIC PODZOLS, FERRO-HUMIC PODZOLS
COVER	HEATH VEGETATION, SMALL SHRUBS, SOME SPHAGNUM BOG
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION BAVARICUM, GLOEOCAPSA PUNCTATA, ASTERIONELLA GRACILLIMA, GLOEOCYSTIS GIGAS
ZOOPLANKTON	COLLOTHECA SP., CHONOCHILUS UNICORNIS, GASTROPUS STYLIFER, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, EUBOSMINA LONGISPINA, CALANOID COPEPODS



BIG POND

SCALE 1 cm. = 100 meters

2 meter contours

Big Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	10	18		0.05	0.22	0.33	5.5	1.5	0.24	0.07	1.9	2.3	0.1	0.75	L 0.0100	0.036
05-Oct-83	10	15	3.2	0.02	0.14	5.7	5.7	1.3	0.22	0.072	2	1.9	0.1	0.8	L 0.0100	0.02
06-Jun-84	10	13.2	2.4	0.04	0.08	0.7	5.8	0.9	0.22	0.06	1.5	2	0.1	0.68	L 0.0100	0.01
25-Sep-84	20	14.2	2.9	0.04	0.1	0.4	5.9	1.1	0.19	0.073	1.7	1.7	0.15	0.72	L 0.0100	L 0.0500
12-Jun-85	5	14.4	2.3	0.07	0.13	0.5	5.7	1.2	0.2	0.06	1.7	2.1	0.14	0.7	L 0.0100	0.035
24-Sep-85	L 5.0000	14.9	2.2	0.05	0.12	0.8	6	1.2	0.19	0.058	2	2.1	0.15	0.78	L 0.0100	0.013
12-Jun-86	5	16	4.1	0.03	0.1	0.9	5.9	1.4	0.21	0.05	1.51	2.4	0.13	0.8	L 0.0100	0.02
23-Sep-86	5	16	2.5	0.03	L 0.1000	1.1	6	1.4	0.22	0.075	1.4	2.4	0.16	0.89	0.02	0.025
11-Jun-87	5	16	2.2	0.07	L 0.1000	0.9	6	1.3	0.22	0.047	1.1	2.5	0.12	0.86	L 0.0100	0.021
20-Oct-87	5	16	2.7	L 0.0100	L 0.1000	0.8	5.9	1.4	0.24	0.08	1.4	2.5	0.14	0.82	0.01	0.017

14-Jun-88	15	15	3.7	0.03	L 0.1000		6	1.3	0.19	0.072	1.2	2.2	0.11	0.74	L 0.0100	0.028
12-Oct-88	10	15	3.3	L 0.0100	L 0.1000	0.9	6	1.3	0.21	0.082	1.4	2.3	0.11	0.8	L 0.0100	0.017
21-Jun-89	10	15	1.8	0.09	0.21	0.5	5.7	1.2	0.19	0.072	1.5	2.4	L 0.1000	0.74	L 0.0100	0.022
10-Oct-89	20	15	2.3	0.08	0.21	0.6	5.7	1.5	0.19	0.068	1.5	2.1	0.12	0.81	L 0.0100	0.03
25-Jun-90	L 5.0000	13.4	1.8	0.1	0.18	0.5	5.8	1.1	0.19	0.066	1.4	1.7	0.1	0.76	L 0.0100	0.021
16-Oct-90	20	16	2.4	0.07	0.14	0.6	5.9	1.3	0.21	0.072	1.7	2.1	0.16	0.72	L 0.0100	0.018
17-Jun-91	15	15	1.8	0.08	0.12	0.5	5.8	1.4	0.21	0.067	1.3	2.3	0.11	0.65	L 0.0100	0.018
04-Jun-92	15	15	1.6	0.07	0.04	0.1	5.9	1.3	0.15	0.066	0.9	2.1	0.11	0.67	L 0.0100	0.05
21-Oct-92	20	14	1.9	0.04	0.11	0.7	6	1.3	0.22	0.07	1.2	2.2	0.15	0.75	L 0.0100	0.05
31-May-93	20	12.1	1.8	0.06	0.13	0.4	5.9	1.2	0.09	0.056	1.2	1.8	0.13	0.65	L 0.0100	0.03
06-Oct-93	30	13.3	2.6	0.03	0.18	1.1	5.9	1.3	0.24	0.075	1.31	1.7	0.22	0.89	L 0.0100	0.016
24-Nov-94	15	15.8	3	0.07	0.12	0.4	5.6	1.7	0.24	0.076	1.4	2.7	0.14	0.81	L 0.0100	0.021
24-May-95	10	15.8	2.6	0.08	0.13	0.2	5.6	1.5	0.21	0.066	1.4	2.5	0.14	0.74	L 0.0100	0.026

20-Sep-95	20	15.4	3.7	0.03	0.08	0.1	5.7	1.6	0.19	0.073	1.39	2.23	0.13	0.755	L 0.0100	0.019
06-May-96	20	12.4	1.9	0.06	0.09	0.4	5.7	1.2	0.14	0.064	0.87	1.73	0.14	0.43	L 0.0100	0.021
02-Oct-96	20	14.4	3.9	L 0.0200	0.1	1.1	6	1.2	0.17	0.076	1.06	1.79	0.11	0.79	L 0.0100	0.02

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 15:48:46

Unnamed Lake

NA NA
No Map

Drainage Basin	Station Number	Latitude	Longitude
Isle Aux Morts	NF02ZB0015	47 49 00	58 55 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
396	11.00	0.55	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.59	0.94	0.21	0.0	0.0

GEOLOGY	ORDOVICIAN SANDSTONE, SLATE, GREYWACKE, CONGLOMERATE, ACIDIC TO MAFIC VOLCANIC ROCKS
SOILS	GLEYSOLS, GLEYED & ORTHIC HUMO-FERRIC PODZOLS & FERRO-HUMIC PODZOLS. ORGANIC SOILS IN BOGS & FENS
COVER	BLACK SPRUCE, BALSAM FIR, MOSS & HEATH BARRENS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Unnamed Lake

NA	NA
	No Map

Drainage Basin	Station Number	Latitude	Longitude
Isle Aux Morts	NF02ZB0007	47 43 00	58 55 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
335	12.0	1.07	0.0	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.21	0.72	0.35	0.00	0.00

GEOLOGY	ORDOVICIAN SANDSTONE, SLATE, GREYWACKE, CONGLOMERATE, ACIDIC TO MAFIC VOLCANIC ROCK
SOILS	GLEYSOLS, GLEYED & ORTHIC HUMO-FERRIC PODZOLS & FERRO-HUMIC PODZOLS. ORGANIC SOILS IN BOGS & FENS
COVER	BLACK SPRUCE, BALSAM FIR, MOSS & HEATH BARRENS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Unnamed Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Knowles Brook	NF02ZC0002	47 48 05	57 18 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
214	200.0	9.6	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
11.5	1.8	1.4	0.0	0.0

GEOLOGY	COMBINATION OF PLUTONIC, SEDIMENTARY, AND VOLCANIC ROCK
SOILS	ROCK LAND & TYPIC MESISOL
COVER	HEATH VEGETATION
FISH	NOT SAMPLED
PHYTOPLANKTON	SYNURA UVELLA, ASTERIONELLA FORMOSA, TABELLARIA FLOCCULOSA, GLOEOCYSTIS PLANKTONICA
ZOOPLANKTON	COLLOTHECA MUTABILIS, KERATELLA TAUROCEPHALA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS, CALANOID COPEPODS

Unnamed Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	20	17	7	0.01	0.24	-0.04	5.4	1.6	0.24	0.14	1.9	2.3	L 0.1000	0.45	0.01	0.07
05-Oct-83	35	13.6	4.4	0.04	0.15	-0.3	5.1	1.2	0.18	0.12	1.4	1.6	0.1	0.35	0.01	0.07
06-Jun-84	20	12.9	2.8	0.03	0.08	-0.1	5.1	0.8	0.33	0.092	1	1.9	0.1	0.33	0.01	0.04
25-Sep-84	40	14	3.9	0.05	0.1	-0.2	5.1	1.3	0.18	0.13	L 1.0000	1.6	0.15	0.33	0.01	0.05
12-Jun-85	5	14.1	3.1	0.03	L 0.1000	-0.2	5.1	1.2	0.2	0.08	1.6	2	0.1	0.35	0.01	0.05
24-Sep-85	5	13.7	2.4	0.02	0.11	0.1	5.2	1.2	0.15	0.1	2	1.9	0.1	0.33	0.011	0.013
12-Jun-86	5	16	2.7	L 0.0100	L 0.1000	0.1	5.3	1.6	0.21	0.07	1.25	2.7	0.12	0.34	0.01	0.03
23-Sep-86	5	16	2.3	0.01	L 0.1000	0.1	5.4	1.6	0.22	0.081	1.4	2.6	0.15	0.39	L 0.0100	0.036
11-Jun-87	15	12.6	2.1	0.04	L 0.1000	0.2	5.3	1.1	0.18	0.08	0.8	1.9	0.1	0.35	L 0.0100	0.039
21-Oct-87	10	16	3.8	L 0.0100	L 0.1000	0.1	5.2	1.4	0.22	0.12	1.4	2.2	0.11	0.39	0.02	0.05

14-Jun-88	20	15	3.1	L 0.0100	L 0.1000	0.5	5.3	1.4	0.19	0.11	1.1	2.4	0.1	0.36	0.01	0.07
12-Oct-88	20	15	2.8	L 0.0100	L 0.1000	-0.1	5.2	1.4	0.21	0.12	1.4	2.1	L 0.1000	0.36	L 0.0100	0.05
21-Jun-89	15	14	1.8	0.06	0.19	-0.2	5.2	1.2	0.19	0.09	0.89	3	L 0.1000	0.36	0.02	0.037
10-Oct-89	30	16	3.2	0.02	0.21	-0.2	5.1	1.6	0.19	0.093	1.4	2.2	0.13	0.37	0.01	0.06
25-Jun-90	5	12.2	1.8	L 0.0100	0.11	-0.2	5.4	1.2	0.17	0.097	1.4	1.7	L 0.1000	0.34	0.01	0.05
16-Oct-90	30	15	3.3	L 0.0100	0.09	0.1	5.2	1.4	0.22	0.1	1.7	2.3	0.12	0.38	L 0.0100	0.05
17-Jun-91	20	13	2.3	0.04	0.09	0.2	5.2	1.3	0.17	0.095	1.2	1.9	L 0.1000	0.3	0.01	0.05
04-Jun-92	25	12	2.4	0.04	0.08	0.2	5.4	1.1	0.15	0.093	0.6	1.7	0.14	0.35	0.02	0.07
21-Oct-92	30	12	2.3	0.02	0.13	-0.5	5.3	1.2	0.17	0.11	1	1.4	0.14	0.35	L 0.0100	0.05
31-May-93	25	10.7	1.9	0.03	0.1	-0.2	5.2	1.1	0.14	0.1	0.9	1.5	0.12	0.25	0.01	0.06
04-Oct-93	50	11.9	4.3	L 0.0200	0.14	-0.1	5	1.2	0.12	0.14	1.06	1.6	0.1	0.27	L 0.0100	0.06
24-Nov-94	30	16.5	4.3	0.02	0.08	-0.1	4.9	1.6	0.23	0.13	1.3	2.5	0.12	0.37	0.02	0.052
08-May-95	30	10.7	3.2	L 0.0200	0.08	-0.9	4.9	0.97	0.11	0.075	0.68	1.4	0.12	0.11	L 0.0100	0.05

19-Sep-95	25	15	3.9	L 0.0200	0.06	-0.3	5.2	1.7	0.18	0.089	1.3	2.14	0.13	0.397	0.01	0.044
06-May-96	25	16.6	2.4	0.03	0.07	-0.1	5.1	1.6	0.2	0.1	1.02	2.73	0.17	0.29	0.01	0.042
02-Oct-96	35	15.6	4.6	L 0.0200	0.1	0.2	5.1	1.5	0.18	0.14	0.95	2.01	0.16	0.38	L 0.0100	0.05
29-May-97	25	14.4	2.6	0.02	0.07	-0.19	5.1	1.39	0.16	0.087	0.78	2.25	0.14	0.25	0.01	0.04
19-Sep-97	30	12.3	3.4	L 0.0200	0.07	0.15	5.2	1.28	0.17	0.11	0.97	1.97	0.11	0.4	0.01	0.04
06-May-99	17	12.6		L 0.0200	0.02	-0.01	5.12	1.28	0.16	0.096	0.82	1.98	0.1	0.29	L 0.0100	0.04
09-May-00	19	21.6	2.6	0.03	0.05	-0.83	4.96	1.36	0.19	0.085	0.91	2.27	0.08	0.28	L 0.0500	0.11

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:28:05

Stephenson Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Grandy Brook	NF02ZC0003	47 54 45	57 29 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
366	127.99	8.80	1655590	6.38

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
10.0	1.8	0.9	5.39	1.29

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE
SOILS	TYPIC MESISOL
COVER	HEATH VEGETATION
FISH	NOT SAMPLED
PHYTOPLANKTON	ANACYSTIS AERUGINOSA, SPIROGYRA VARIANS, MOUGEOTIA QUADRANGULATA, SCENEDESMUS BIJUGA, COELASTRUM CAMBRICA
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA

Stephenson Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	20	16	8	L 0.0100	0.2	1.1	5.9	1.6	0.24	0.09	2	2	0.1	0.7	L 0.0100	0.1
05-Oct-83	30	13.1	5.2	0.01	0.12	0.8	5.8	1.2	0.22	0.08	1.3	1.5	0.1	0.7	L 0.0100	0.06
06-Jun-84	20	10.1	3	L 0.0100	0.06	0.7	5.8	0.6	0.16	0.064	1.3	1.3	0.1	0.48	L 0.0100	0.18
25-Sep-84	30	13.3	4.5	0.02	0.1	0.9	6	1.2	0.21	0.082	1.5	1.3	0.19	0.61	L 0.0100	0.06
12-Jun-85	10	11.8	3	L 0.0100	L 0.1000	0.8	5.8	1	0.2	0.06	1.6	1.6	0.16	0.6	0.01	0.063
24-Sep-85	5	13.1	3.3	L 0.0100	0.1	1.1	6.2	1.2	0.19	0.057	1.6	1.6	0.22	0.61	L 0.0100	0.032
12-Jun-86	5	13	2.8	L 0.0100	L 0.1000	1	6.1	1.3	0.19	0.04	1.25	1.9	0.18	0.57	L 0.0100	0.03
23-Sep-86	10	15	3.7	L 0.0100	L 0.1000	1.3	6.1	1.4	0.24	0.06	1.4	2.4	0.22	0.73	L 0.0100	0.04
11-Jun-87	10	11.6	3.1	L 0.0100	L 0.1000	1.1	6.1	1	0.19	0.047	0.8	1.3	0.13	0.6	L 0.0100	0.044
20-Oct-87	10	15	4.2	L 0.0100	L 0.1000	1	6.1	1.3	0.45	0.077	1.3	1.8	0.19	0.73	0.01	0.06

14-Jun-88	20	10.9	3.1	L 0.0100	L 0.1000	1	6.1	0.9	0.16	0.068	0.9	1.3	0.19	0.52	L 0.0100	0.07
12-Oct-88	20	14	4.8	L 0.0100	L 0.1000	1.4	6.3	1.2	0.23	0.068	1.4	1.6	0.15	0.69	L 0.0100	0.05
21-Jun-89	15	12.2	2.1	0.03	0.19		6	1.1	0.18	0.053	1.1	2.3	0.15	0.59	0.01	0.044
10-Oct-89	30	19	3.8	L 0.0100	0.22	1.3	5.9	1.5	0.22	0.077	1.3	1.8	0.15	0.73	L 0.0100	0.08
25-Jun-90	5	10.8	2	L 0.0100	0.08	0.6	6	0.97	0.17	0.054	1.3	1.1	0.12	0.53	L 0.0100	0.06
16-Oct-90	40	14.6	4.3	L 0.0100	0.1	1.3	6	1.3	0.23	0.085	1.6	2	0.19	0.69	L 0.0100	0.06
17-Jun-91	20	11	2.3	0.02	0.08	1.1	6	1	0.14	0.055	1	1.4	0.15	0.45	L 0.0100	0.06
08-Oct-91	35	12	4.4	0.01	0.15	1.1	5.7	1.3	0.19	0.088	0.9	1.6	0.21	0.54	L 0.0100	0.08
04-Jun-92	25	9	1.5	0.04	0.06	0.7	6.1	0.87	0.1	0.066	L 0.5000	0.9	0.2	0.44	0.01	0.13
21-Oct-92	35	13	3.2	L 0.0100	0.11	1.3	6.1	1.3	0.24	0.09	1	1.3	0.2	0.75	L 0.0100	0.14
31-May-93	25	9.6	2.2	0.02	0.11	1.1	6	0.9	0.14	0.062	0.8	1.2	0.16	0.45	L 0.0100	0.1
04-Oct-93	50	12.3	3.8	L 0.0200	0.15	1.1	6	1.3	0.19	0.1	1.09	1.3	0.19	0.67	L 0.0100	0.1
24-Nov-94	30	14.3	5.3	L 0.0200	0.08	1	5.8	1.6	0.26	0.099	1.2	2	0.19	0.73	L 0.0100	0.1

08-May-95	30	12.6	3.9	0.03	0.1	0.7	5.5	1.3	0.19	0.083	0.88	1.8	0.17	0.39	L 0.0100	0.09
19-Sep-95	35	13.6	5.5	L 0.0200	0.05	1	5.9	1.4	0.22	0.071	1.13	1.57	0.19	0.69	L 0.0100	0.06
06-May-96	25	12.4	2.1	L 0.0200	0.05	0.6	5.9	1.3	0.17	0.07	0.91	1.75	0.21	0.47	0.01	0.09
02-Oct-96	65	13.6	7.5	L 0.0200	0.09	0.6	5.4	1.2	0.19	0.14	0.75	1.23	0.15	0.57	L 0.0100	0.09
29-May-97	25	9.9	2.4	L 0.0200	0.06	0.62	6	0.99	0.15	0.054	0.55	1.26	0.17	0.39	0.01	0.06
19-Sep-97	35	10.67	4.5	L 0.0200	0.06	1.42	6.1	1.15	0.19	0.08	0.78	1.27	0.19	0.64	L 0.0100	0.07
06-May-99	20	10.8		L 0.0200	0.02	0.76	5.71	1.09	0.15	0.061	0.65	1.46	0.14	0.45	L 0.0100	0.07
09-May-00	25	11.9	2.7	0.04	0.08	0.11	5.86	1.21	0.18	0.068	0.85	1.7	0.14	0.44	0.098	0.0989

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:06:13

Unnamed Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Grandy Brook	NF02ZC0016	48 00 00	57 45 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
457	176.0	6.0	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.7	2.25	0.88	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, SYENITE, MONZONITE, QUARTZ DIORITE
SOILS	ORTHIC HUMIC PODZOLS, LITHIC PHASE
COVER	LABRADOR TEA, RHODORA, SMALL PATCHES OF CARIBOU & SPHAGNUM MOSS, SEDGES
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Unnamed Lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
23-Sep-86	L 5.0000	12.5	1.6	L 0.0100	L 0.1000	0.5	5.7	1.2	0.16	0.029	1.2	2	0.11	0.4	L 0.0100	0.027
11-Jun-87	5	11.8	2.5	0.03	0.26	0.4	5.8	1.1	0.17	0.035	1.6	1.7	0.1	0.4	L 0.0100	0.029
20-Oct-87	5	12.6	2.2	L 0.0100	L 0.1000	0.2	5.6	1.2	0.2	0.04	1.2	1.8	0.13	0.39	L 0.0100	0.025
14-Jun-88	10	11.3	1.8	L 0.0100	L 0.1000	0.9	5.7	1.1	0.18	0.047	1	1.6	0.11	0.36	L 0.0100	0.05
12-Oct-88	5	11.5	2.4	0.01	L 0.1000	0.5	5.7	1.2	0.19	0.042	1.3	1.8	0.13	0.39	L 0.0100	0.034
21-Jun-89	10	12.2	1.9	0.05	0.11	-0.1	5.6	1.3	0.18	0.045	1.1	1.6	0.16	0.38	L 0.0100	0.039
10-Oct-89	10	12.6	2.7	L 0.0100	0.17	0.5	5.6	1.5	0.26	0.045	1.2	1.8	0.15	0.46	L 0.0100	0.05
25-Jun-90	L 5.0000	11.1	1.5	0.07	0.1	0.5	5.7	1	0.17	0.047	1.1	1.4	0.11	0.48	L 0.0100	0.06
16-Oct-90	20	12	2.5	L 0.0100	0.07	0.3	5.7	1.2	0.17	0.05	1.5	1.8	0.16	0.38	L 0.0100	0.05
17-Jun-91	15	11	2	0.04	0.08	0.5	5.6	1.1	0.17	0.05	1	1.6	0.1	0.35	L 0.0100	0.05

08-Oct-91	15	11	2.2	0.02	0.13	0.4	5.5	1.1	0.16	0.05	0.8	1.7	0.14	0.29	L 0.0100	0.07
04-Jun-92	15	10	1.5	0.05	0.07	-0.1	5.8	1	0.1	0.052	0.5	1.4	0.14	0.31	0.01	0.06
21-Oct-92	15	10	1.6	0.02	0.09	0.4	5.8	1.1	0.17	0.043	0.9	1.2	0.15	0.39	L 0.0100	0.05
31-May-93	15	9.7	1.5	0.04	0.09	0.1	5.6	1	0.14	0.05	0.9	1.4	0.13	0.3	L 0.0100	0.049
04-Oct-93	20	9.8	2.7	L 0.0200	0.1	0.3	5.7	1.1	0.17	0.048	1.01	1.4	0.13	0.33	L 0.0100	0.029
12-May-94	10	8.3	1.4	0.06	0.09	-0.6	5	0.41	0.06	0.019	0.5	0.9	0.09	0.1	L 0.0100	0.025
24-Nov-94	15	11.6	3.2	L 0.0200	0.06	0.5	5.5	1.3	0.2	0.059	1	1.8	0.14	0.42	L 0.0100	0.06
24-May-95	15	11.1	2.6	L 0.0200	0.07	0.1	5.4	1.1	0.15	0.049	1.1	1.9	0.13	0.3	L 0.0100	0.05
06-May-96	20	11.2	2.1	0.02	0.06	0.3	5.5	1.1	0.15	0.058	0.79	1.53	0.15	0.3	L 0.0100	0.05
02-Oct-96	15	11.2	2.7	L 0.0200	0.07	0.2	5.6	1.1	0.16	0.055	0.73	1.44	0.13	0.37	L 0.0100	0.03
29-May-97	15	10.3	2.1	L 0.0200	0.07	0.25	5.6	1.05	0.14	0.052	0.61	1.46	0.13	0.29	L 0.0100	0.04
19-Sep-97	15	9.77	2.8	L 0.0200	0.06	0.51	5.8	1.02	0.15	0.05	0.78	1.49	0.13	0.37	L 0.0100	0.04
06-May-99	6	4.49	0.7	L 0.0200	L 0.0100	0	5.27	0.37	L 0.0500	0.017	0.15	0.63	L 0.0500	L 0.1000	L 0.0300	L 0.0100

09-May-00	16	14.4	2.3	0.04	0.06	-0.49	5.33	1.39	0.21	0.053	0.96	2.29	0.1	0.38	L 0.0500 0.0407

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:33:28

Unnamed Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Grandy Brook	NF02ZC0017	47 46 59	57 46 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
229	45.0	3.29	0.0	0.00

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.36	1.25	0.55	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE
SOILS	ORTHIC HUMIC PODZOLS, LITHIC PHASE
COVER	LABRADOR TEA, RHODORA, SMALL PATCHES OF CARIBOU & SPHAGNUM MOSS, SEDGES
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Unnamed Lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
23-Sep-86	10	19	3.2	L 0.0100	L 0.1000	0.1	5.3	1.8	0.26	0.092	1.9	3.3	0.16	0.59	L 0.0100	0.07
11-Jun-87	25	17	4.4	0.04	L 0.1000	0.3	5.4	1.5	0.25	0.975	1.7	2.6	0.13	0.51	0.01	0.06
20-Oct-87	30	19	4.4	L 0.0100	L 0.1000	0.1	5.2	1.6	0.31	0.13	1.6	2.9	0.16	0.57	L 0.0100	0.11
14-Jun-88	30	18	4.1	L 0.0100	L 0.1000	0.7	5.4	1.8	0.29	0.12	1.4	2.9	0.17	0.52	0.01	0.08
12-Oct-88	35	18	4.9	0.01	L 0.1000	0.5	5.3	1.7	0.28	0.125	2	2.7	0.15	0.55	0.03	0.16
21-Jun-89	40	18	3.7	0.06	0.15	-0.1	5.3	1.8	0.26	0.12	1.4	2.4	0.24	0.52	0.02	0.17
10-Oct-89	40	19	4.2	L 0.0100	0.21	-0.1	5.2	1.9	0.38	0.12	1.7	2.6	0.21	0.62	0.02	0.18
25-Jun-90	15	15.5	3.3	0.08	0.14	-0.1	5.3	1.5	0.24	0.1	1.7	2.1	0.14	0.57	0.02	0.14
16-Oct-90	40	18	4.2	L 0.0100	0.16	0.1	5.3	1.7	0.29	0.12	1.8	2.4	0.19	0.54	0.02	0.18
17-Jun-91	40	17	3.4	0.05	0.09	0.3	5.2	1.6	0.24	0.11	1.6	2.6	0.14	0.5	0.01	0.11

08-Oct-91	40	17	4.6	0.03	0.2	0.3	5.1	1.7	0.27	0.12	1.6	2.7	0.21	0.49	L 0.0100	0.1
04-Jun-92	45	15	3.6	0.04	0.07	-0.3	5.3	1.5	0.2	0.11	1	2.3	0.19	0.53	0.01	0.13
21-Oct-92	45	16	3.9	0.04	0.13	-0.3	5.2	1.5	0.28	0.13	1.5	2	0.19	0.59	L 0.0100	0.16
31-May-93	30	14.5	3.1	0.04	0.13	-0.1	5.2	1.4	0.2	0.1	1.3	2.2	0.16	0.45	L 0.0100	0.13
06-Oct-93	60	14.3	4.3	0.03	0.15	0.5	5.2	1.5	0.22	0.13	1.47	1.7	0.16	0.56	L 0.0100	0.14
24-Nov-94	40	19.1	5.4	0.04	0.11	-0.1	5	2	0.3	0.12	1.6	3	0.18	0.58	0.01	0.14
24-May-95	35	18.6	4.3	0.06	0.13	-0.3	5.1	1.8	0.27	0.12	1.9	3.2	0.17	0.46	0.02	0.12
20-Sep-95	40	19.1	5.5	0.02	0.08	-0.2	5.2	2	0.28	0.11	1.57	2.7	0.19	0.592	0.01	0.07
06-May-96	40	18.7	3.6	0.03	0.07	-0.1	5.2	1.9	0.26	0.12	1.29	2.97	0.22	0.27	0.01	0.11
02-Oct-96	45	18.1	5.7	L 0.0200	0.1	0.1	5.1	1.6	0.25	0.15	1.19	2.44	0.18	0.5	0.01	0.11
29-May-97	35	14.1	3.6	0.02	0.09	0.52	5.7	1.34	0.2	0.078	0.86	2.01	0.17	0.56	L 0.0100	0.09
19-Sep-97	40	14.5	3.9	0.02	0.08	0.25	5.3	1.53	0.23	0.11	1.17	2.4	0.19	0.51	0.01	0.1
06-May-99	26	16.3	3.5	L 0.0200	0.03	0.13	5.16	1.64	0.23	0.11	1.09	2.54	0.14	0.45	0.01	0.12

09-May-00	29	19.5	3.4	0.05	0.11	-1	5.05	1.81	0.28	0.104	1.29	3.11	0.12	0.49	0.114	0.12

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:31:50

Unnamed Pond

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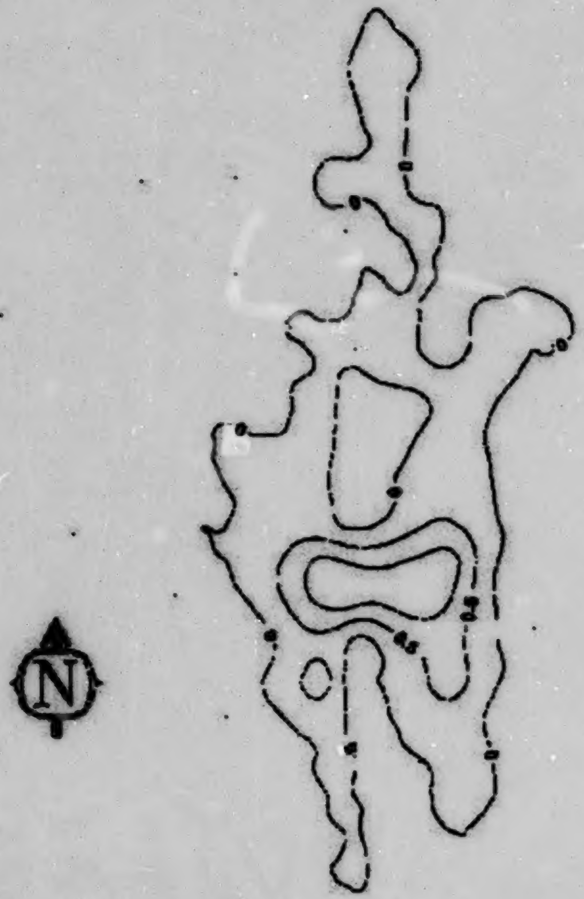
Drainage Basin	Station Number	Latitude	Longitude
Dolland Brook	NF02ZD0001	47 48 40	56 34 55

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
275	67.73	2.40	189626	15.19

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.20	1.7	0.80	1.40	0.30

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, SYENITE, MONZONITE, QUARTZ DIORITE
SOILS	ORTHIC HUMIC PODZOLS, LITHIC PHASE
COVER	HEATH, BLACK SPRUCE APPROX 70-30%
FISH	NOT SAMPLED
PHYTOPLANKTON	ANACYSTIS AERUGINOSA, APHANOCAPSA DELICATISSIMA, PERIDINIUM INCONSPICUUM, TABELLARIA FLOCCULOSA
ZOOPLANKTON	TRICHOCERCA CYLINDRICA, KERATELLA TAUROCEPHALA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS, DIAPTOMUS MINUTUS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01NF02ZD0001 UNNAMED LAKE

SCALE 1 cm. = 150 meters

0.5 meter contours

Unknown Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	35	18	8	L 0.0100	0.25	0.79	5.7	1.5	0.28	0.09	2	2.1	0.2	0.82	L 0.0100	0.27
17-Jun-83	20	14.2	3.5	0.04	0.15	1.3	6	1.1	0.25	0.05	0.9	1.8	0.1	0.5	L 0.0100	0.08
05-Oct-83	45	16	6.7	0.02	0.14	1.4	5.8	1.4	0.31	0.072	1.2	1.9	0.1	1	L 0.0100	0.18
06-Jun-84	30	12.4	4.1	L 0.0100	0.07	1	5.9	0.8	0.22	0.054	1.3	1.8	0.2	0.58	L 0.0100	0.08
25-Sep-84	50	16	5.5	L 0.0100	0.11	1.2	6.4	1.4	0.27	0.06	1	1.7	0.19	0.87	L 0.0100	0.26
12-Jun-85	10	11.8	3.6	L 0.0100	L 0.1000	0.9	5.8	1.1	0.2	0.04	1.6	1.7	0.14	0.6	0.01	0.079
24-Sep-85	10	14.3	4.2	L 0.0100	0.11	1.6	6.3	1.3	0.24	0.05	1.6	1.6	0.15	0.85	L 0.0100	0.15
12-Jun-86	15	15	3.7	L 0.0100	L 0.1000	1.4	6.1	1.4	0.23	0.03	1.14	2.2	0.14	0.73	L 0.0100	0.08
23-Sep-86	10	18	4.4	L 0.0100	0.1	2	6.1	1.8	0.3	0.035	1.6	2.3	0.25	0.99	L 0.0100	0.15
11-Jun-87	15	14	3.2	L 0.0100	L 0.1000	1.8	6.2	1.1	0.23	0.03	0.8	1.6	0.12	0.86	L 0.0100	0.12

14-Jun-88	20	14	4	L 0.0100	L 0.1000	1.3	6.2	1.3	0.22	0.04	0.9	1.9	L 0.1000	0.72	L 0.0100	0.09
12-Oct-88	40	17	3.8	L 0.0100	L 0.1000	1.7	6.3	1.5	0.32	0.06	1.1	2.1	0.13	0.97	L 0.0100	0.16
21-Jun-89	20	14	2.4	L 0.0100	0.13	1.3	6.2	1.2	0.21	0.032	0.98	2.2	0.14	0.72	L 0.0100	0.07
10-Oct-89	65	18	4.3	L 0.0100	0.28	1.5	6.1	1.7	0.22	0.057	1.2	2.2	0.13	0.85	0.01	0.16
27-Jun-90	10	12.3	2.5	L 0.0100	0.08	1.9	6.1	1.1	0.18	0.042	1.3	1.4	0.12	0.71	L 0.0100	0.14
16-Oct-90	60	16	5.1	L 0.0100	0.14	2	6.2	1.6	0.29	0.059	1.4	2.1	0.17	0.89	L 0.0100	0.17
17-Jun-91	50	16	4.2	L 0.0100	0.13	2.6	6.2	1.5	0.24	0.09	1.1	1.8	L 0.1000	0.9	L 0.0100	0.13
04-Jun-92	20	10	1.9	L 0.0100	0.05	1.3	6.2	1	0.15	0.04	L 0.5000	1.3	0.17	0.58	L 0.0100	0.11
21-Oct-92	50	14	3.3	L 0.0100	0.15	0.9	5.9	1.5	0.24	0.11	2.2	1.6	0.17	0.75	0.02	0.43
31-May-93	25	10.1	2	L 0.0100	0.09	1.1	6.2	0.93	0.09	0.053	0.6	1.3	0.17	0.55	0.01	0.18
04-Oct-93	100	14.3	7.2	L 0.0200	0.21	0.9	5.2	1.5	0.24	0.11	0.88	2.1	0.09	0.73	L 0.0100	0.25
23-Nov-94	45	16.8	6.6	L 0.0200	0.09	1.2	5.8	1.7	0.32	0.084	1.2	2.4	0.13	0.86	L 0.0100	0.18
08-May-95	20	17	3.3	L 0.0200	0.08	3.2	6.1	1.5	0.32	0.041	0.87	1.8	0.16	1	0.09	0.23

19-Sep-95	75	14.8	8.8	L 0.0200	0.05	1.1	5.7	1.6	0.27	0.1	0.82	1.57	0.13	0.838	L 0.0100	0.25
06-May-96	25	14.7	2.2	L 0.0200	0.04	0.9	6	1.5	0.22	0.05	0.76	2.37	0.17	0.61	L 0.0100	0.09
01-Oct-96	40	16.6	5.8	L 0.0200	0.11	1.8	6	1.5	0.27	0.077	0.74	1.91	0.11	0.85	L 0.0100	0.2

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:34:14

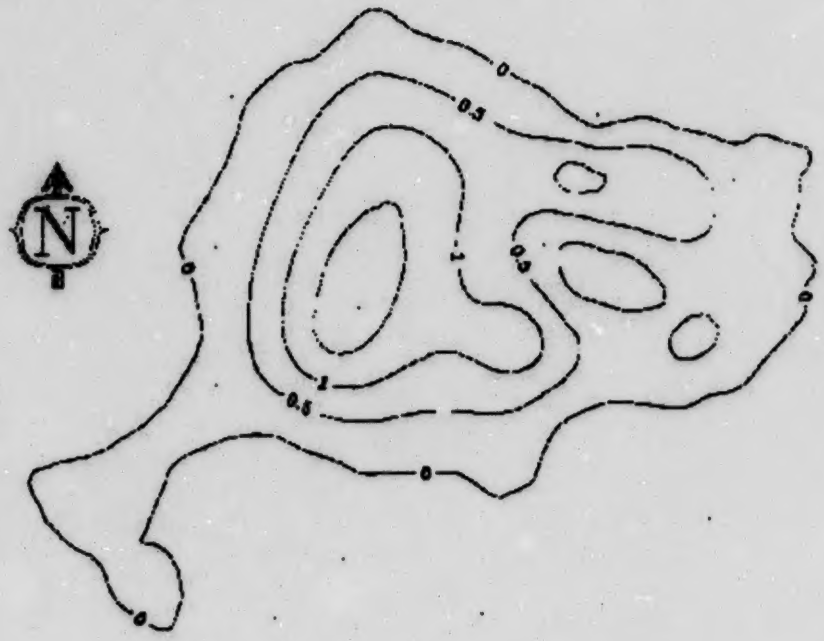
Unknown Pond

Drainage Basin	Station Number	Latitude	Longitude
Wolf Lake	NF02ZD0002	48 04 30	56 41 35

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
275	21.75	5.40	120421	53.81

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.7	0.2	0.2	1.78	0.55

GEOLOGY	**DEVONIAN GRANITE, GRANODIORITE, SYENITE, MONZONITE, QUARTZ DIORITE**
SOILS	**ORTHIC HUMIC PODZOLS, LITHIC PHASE**
COVER	**MIXED BLACK SPRUCE FOREST-HEATH (APPROX 50-50)**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**Not Sampled**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01NF02ZD0002 UNNAMED LAKE

SCALE 1 cm. = 65 meters

0.5 meter contours

Unknown Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIF/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	80	19	14	L 0.0100	0.27	0.1	5.3	1.6	0.29	0.2		2.3	0.1	1.1	0.04	0.33
17-Jun-83	80	14.4	8.3	L 0.0100	0.15	0.6	5.3	1.1	0.2	0.2	0.7	1.2	0.1	0.65	0.01	0.21
05-Oct-83	100	18	14	L 0.0100	0.14	0.7	5.2	1.6	0.31	0.25	1	1.9	L 0.1000	1.2	0.03	0.38
06-Jun-84	100	12.3	9.5	L 0.0100	0.1	0.3	5.1	0.8	0.18	0.13	1	1.2	0.1	0.58	0.02	0.18
25-Sep-84	140	18	14	L 0.0100	0.12	0.5	5.2	1.5	0.3	0.27	L 1.0000	1.7	0.1	1.2	0.03	0.37
12-Jun-85	80	11.4	8.8	L 0.0100	L 0.1000	0.2	5.1	0.9	0.12	0.12	0.6	1	0.1	0.6	0.02	0.16
24-Sep-85	90	18	12	L 0.0100	0.12	0.9	5.4	1.4	0.28	0.24	0.6	1.8	L 0.1000	1.2	0.019	0.28
12-Jun-86	55	14	6.5	L 0.0100	0.12	0.9	5.6	1.4	0.17	0.13	1	1.9	0.18	0.8	L 0.0100	0.17
23-Sep-86	100	21	14	L 0.0100	0.12	1	5.3	1.8	0.33	0.26	1	2.3	0.15	1.4	0.02	0.29
11-Jun-87	70	12.9	7.9	L 0.0100	L 0.1000	1.1	5.6	1.1	0.18	0.132	0.8	1.3	0.11	0.77	L 0.0100	0.17

14-Jun-88	110	14	9.9	L 0.0100	L 0.1000	1	5.4	1.2	0.19	0.2	0.9	1.4	L 0.1000	0.82	0.02	0.22
12-Oct-88	120	22	13	0.02	0.1	1.1	5.3	1.8	0.37	0.26	1.2	2.4	0.12	1.5	0.02	0.3
21-Jun-89	60	13	5.2	L 0.0100	0.27	0.9	5.5	1.2	0.15	0.14	0.81	1.6	0.17	0.63	L 0.0100	0.15
10-Oct-89	160	24	12	L 0.0100	0.27	0.5	4.9	1.9	0.41	0.32	1.3	2.4	L 0.1000	1.4	0.05	0.48
25-Jun-90	80	13.8	8.1	L 0.0100	0.18	0.8	5.4	1.2	0.2	0.18	1.4	1.2	L 0.1000	0.81	0.02	0.25
16-Oct-90	130	23	12.8	0.01	0.21	1.1	5.3	2	0.41	0.28	1.7	2.7	0.19	1.5	0.04	0.4
17-Jun-91	85	12	6.3	L 0.0100	0.15	1	5.5	1.1	0.15	0.15	1.1	1.1	L 0.1000	0.6	0.01	0.15
08-Oct-91	25	14	3.1	0.03	0.14	0.3	5.2	1.4	0.2	0.11	1.2	2	0.1	0.31	0.02	0.06
04-Jun-92	70	10	4.6	L 0.0100	0.1	0.5	5.5	0.84	0.12	0.13	L 0.5000	0.8	0.14	0.58	0.03	0.19
21-Oct-92	130	21	11.2	L 0.0100	0.21	-0.1	4.8	1.6	0.33	0.24	2.5	2	0.16	1.3	0.03	0.31
31-May-93	210	10.5	6.2	L 0.0100	0.15	0.5	5.3	0.93	0.06	0.16	0.6	0.9	0.11	0.55	0.02	0.22
04-Oct-93	150	16.3	12.7	L 0.0200	0.31	1.2	5.3	1.5	0.26	0.24	0.93	1.7	0.12	1.3	0.01	0.34
23-Nov-94	100	20	12.8	L 0.0200	0.1	0.6	5	1.6	0.33	0.23	1.3	2.3	0.15	1.2	0.03	0.34

08-May-95	65	9.2	5.8	L 0.0200	0.06	-0.2	5.1	0.75	0.11	0.11	0.46	0.75	0.14	0.33	0.02	0.18
19-Sep-95	150	18.4	15	L 0.0200	0.07	0.5	5.1	1.5	0.29	0.26	0.8	1.45	0.11	1.24	0.05	0.41
06-May-96	60	14.4	5.6	L 0.0200	0.06	0.6	5.5	1.4	0.17	0.14	0.83	1.94	0.28	0.68	0.01	0.2
02-Oct-96	115	17.2	13.7	L 0.0200	0.13	0.6	5.1	1.3	0.22	0.26	0.57	1.3	0.1	1.04	0.03	0.33

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:34:57

Unnamed Pond

Drainage Basin	Station Number	Latitude	Longitude
Dolland Brook	NF02ZD0006	47 47 30	56 34 28

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
274	68.39	4.00	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.90	1.08	0.67	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, SYENITE, MONZONITE, QUARTZ DIORITE
SOILS	ROCK LAND, ORTHIC HUMIC PODZOLS, LITHIC PHASE
COVER	LABRADOR TEA, RHODORA, SMALL PATCHES OF CARIBOU & SPHAGNUM MOSS, SEDGES
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Unknown Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Long Harbour	NF02ZF0003	47 50 05	54 49 15

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
168	170	11.4	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
9.0	1.9	1.2	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, SYENITE, MONZONITE, QUARTZ DIORITE
SOILS	GLEYSOLS, GLEYED & ORTHIC HUM-FERRIC & FERRO-HUMIC PODZOLS
COVER	TUNDRA TYPE VEGETATION
FISH	NOT SAMPLED
PHYTOPLANKTON	FRAGILLARIA INTERMEDIA, FRAGILLARIA CONSTRUENS, MOUGEOTIA QUADRANGULATA, COELASTRUM CAMBRICA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA EURYPTERA, POLYARTHA VULGARIS

Unknown Pond

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	5	16	4	L 0.0100	0.24	0.7	6.3	1.7	0.22	0.06	1.5	2	0.1	0.7	0.03	0.27
17-Jun-83	5	16	2.2	L 0.0100	0.13	1.4	5.9	1.5	0.2	0.02	1.2	2.2	L 0.1000	0.45	L 0.0100	0.08
05-Oct-83	5	16	4	L 0.0100	0.12	1.7	5.9	1.7	0.26	0.022	1.5	2.3	0.1	0.9	0.01	0.22
06-Jun-84	5	14.6	1.8	L 0.0100	0.06	1.1	6	1.2	0.22	0.02	1.3	2.6	0.2	0.58	L 0.0100	0.09
25-Sep-84	20	17	3.2	L 0.0100	0.1	1.3	6.4	1.8	0.24	0.028	1.1	2.2	0.22	0.76	0.01	0.21
12-Jun-85	L 5.0000	13.7	2	L 0.0100	L 0.1000	1.1	6.1	1.4	0.15	0.02	1.2	2.2	0.23	0.6	0.01	0.083
24-Sep-85	5	16	2.2	L 0.0100	0.1	1.9	6.4	1.7	0.2	0.011	1	2.3	0.22	0.8	L 0.0100	0.092
12-Jun-86	L 5.0000	14	2.2	L 0.0100	0.12	1.1	6.2	1.5	0.19	0.02	L 1.0000	2.8	0.16	0.61	L 0.0100	0.08
23-Sep-86	L 5.0000	17	2	L 0.0100	L 0.1000	1.9	6.3	1	0.22	L 0.0100	1	1.7	0.11	0.81	L 0.0100	0.1
11-Jun-87	L 5.0000	13	1.9	L 0.0100	L 0.1000	1.5	6.3	1.2	0.17	L 0.0100	0.8	1.7	0.15	0.65	L 0.0100	0.06

21-Oct-87	L 5.0000	18	1.8	L 0.0100	L 0.1000	1.7	6.4	1.8	0.22	0.022	1.4	2.5	0.2	0.76	L 0.0100	0.09
15-Jun-88	L 5.0000	17	2	L 0.0100	L 0.1000	1.3	6.2	1.8	0.23	0.014	1.2	2.8	0.14	0.69	L 0.0100	0.05
11-Oct-88	5	19	1.5	L 0.0100	L 0.1000	1.6	6.3	2	0.27	0.025	1.3	3	0.16	0.84	L 0.0100	0.12
21-Jun-89	L 5.0000	14	1.3	L 0.0100	0.13	1.5	6.2	1.2	0.16	0.013	1.2	2.3	0.21	0.59	L 0.0100	0.06
10-Oct-89	25	17	2.1	L 0.0100	0.24	1.4	6.2	2.1	0.26	0.027	1	2.8	0.21	0.62	0.07	0.22
27-Jun-90	30	18.2	5.6	L 0.0100	0.11	2.4	6.1	1.5	0.3	0.062	1.9	0.8	0.15	1.3	0.03	0.19
16-Oct-90	20	16	2.4	L 0.0100	0.11	2	6.3	1.8	0.21	0.024	1.4	2.4	0.22	0.73	0.0[illegible]	0.16
17-Jun-91	10	11	4.5	L 0.0100	0.07	1.1	6.2	1.2	0.14	0.015	0.9	1.5	L 0.1000	0.45	L 0.0100	0.11
26-May-92	L 5.0000	12	1.3	L 0.0100	0.01	1.3	6.1	1.3	0.13	0.028	0.5	1.8	0.23	0.49	L 0.0100	0.13
12-Nov-92	15	16	1.6	0.07	0.11	1.2	6.2	1.9	0.2	0.05	1.5	3.1	0.23	0.64	L 0.0100	0.36
19-May-93	10	10.9	1.7	L 0.0100	0.07	0.5	6.1	1.2	0.14	0.039	0.9	1.6	0.24	0.4	L 0.0100	0.08
10-Nov-93	20	13	3.9	L 0.0200	0.12	1.3	5.8	1.5	0.2	0.065	1	2	0.19	0.6	L 0.0100	0.2
24-May-94	10	12.8	2.6	L 0.0200	0.05	0.5	6	1.4	0.16	0.033	0.7	2	0.17	0.46	L 0.0100	0.08

22-Nov-94	10	16.1	3.1	L 0.0200	0.08	1.4	6.2	2	0.23	0.064	1	2.7	0.19	0.75	0.07	0.27
08-May-95	10	10.9	1.9	L 0.0200	0.04	0.7	6	1.2	0.15	0.048	0.66	1.4	0.15	0.45	0.02	0.16
19-Sep-95	25	14.8	4	L 0.0200	0.06	1.4	6.1	1.7	0.186	0.044	0.87	1.91	0.18	0.69	0.01	0.16
06-May-96	10	15.3	1.4	L 0.0200	0.04	1.2	6.2	1.7	0.19	0.066	0.92	2.57	0.2	0.68	0.02	0.14
01-Oct-96	10	17.2	2.8	L 0.0200	0.15	1.9	6.4	1.8	0.23	0.039	0.84	2.19	0.15	0.75	L 0.0100	0.13

Last Modified By: clairt
Last Modified On: Wednesday, January 10, 2001 16:35:35

Hungry Grove Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Long Harbour	NF02ZF0004	47 50 45	55 07 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
183	580.0	44.4	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
22.0	5.0	1.7	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE
SOILS	GLEYSOLS, GLEYED & ORTHIC HUMO-FERRIC & FERRO-HUMIC PODZOLS. ORGANIC SOILS IN FENS & BOGS
COVER	BLACK SPRUCE FOREST WITH ABUNDANT BOGS
FISH	NOT SAMPLED
PHYTOPLANKTON	ANACYSTIS AERUGINOSA V. MAJOR, MERISMOPEDIA GLAUCA, ASTERIONELLA GRACILLIMA, HORMIDIUM KLEBSII
ZOOPLANKTON	KERATELLA TAUROCEPHALA, CALANOID COPEPODS

Page Sheet1

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
07-Nov-80	35	21	8	0.05	0.24	1.96	5.7	1.8	0.37	0.11	1.9	2.4	0.1	1.1	0.02	0.38
17-Jun-83	15	21	4	L 0.0100	0.15	1.6	6	1.7	0.4	0.058	0.8	2.9	0.2	0.8	L 0.0100	0.09
05-Oct-83	40	18	6.7	0.04	0.15	1.5	5.8	1.9	0.35	0.087	1.1	2.7	0.1	1.1	0.02	0.25
06-Jun-84	25	21	3.9	L 0.0100	0.06	1.4	6	2.1	0.3	0.05	1.5	3.6	0.3	0.88	0.02	0.14
25-Sep-84	40	20	5.6	0.01	L 0.1000	1.4	6.3	1.9	0.34	0.065	1.7	2.5	0.25	1	0.01	0.14
12-Jun-85	10	20	4	L 0.0100	L 0.1000	1.8	6.2	1.9	0.4	0.05	2	3	0.23	1.7	0.02	0.08
24-Sep-85	5	21	3.8	L 0.0100	L 0.1000	2.1	6.4	2	0.35	0.042	2	2.9	0.25	1.2	L 0.0100	0.08
12-Jun-86	20	20	3.6	L 0.0100	L 0.1000	1.5	6.3	1.9	0.33	0.04	1.51	2.9	0.2	1	L 0.0100	0.09
23-Sep-86	20	21	3.8	L 0.0100	L 0.1000	2.2	6.3	1.1	0.37	0.06	1.6	2	0.13	1.2	0.02	0.17
11-Jun-87	25	17	4.1	L 0.0100	L 0.1000	1.9	6.3	1.4	0.3	0.062	0.9	2.2	0.19	1	0.02	0.13

21-Oct-87	10	20	3.9	L 0.0100	L 0.1000	2.5	6.6	1.8	0.37	0.04	1.3	2.5	0.23	1.2	0.01	0.12
15-Jun-88	20	21	4.8	L 0.0100	L 0.1000	1.6	6.3	2	0.36	0.058	1.3	3.2	0.21	1	L 0.0100	0.1
11-Oct-88	15	23	3.2	L 0.0100	L 0.1000	2.4	6.4	2.1	0.4	0.05	1.3	3.3	0.21	1.3	0.01	0.07
21-Jun-89	30	20	3.1	0.02	0.13	2	6.3	1.7	0.31	0.05	1.4	2.8	0.21	1	0.02	0.1
10-Oct-89	60	23	4.3	L 0.0100	0.25	2.5	6.3	2.1	0.32	0.082	1.3	2.9	0.24	1.2	0.05	0.44
27-Jun-90	30	16.2	4.2	L 0.0100	0.09	1.5	6.1	1.5	0.27	0.08	1.8	2	0.21	0.95	0.03	0.19
16-Oct-90	30	19	4.7	0.02	0.11	2.7	6.4	2	0.34	0.049	1.5	2.6	0.34	1.1	0.01	0.12
17-Jun-91	30	16	1.4	L 0.0100	0.08	1.7	6.3	1.5	0.28	0.06	1	2	0.13	0.8	L 0.0100	0.07
26-May-92	30	16	2.9	0.02	0.1	1.9	6.3	1.6	0.3	0.072	0.9	2	0.24	0.92	0.04	0.17
12-Nov-92	30	19	3.8	0.02	0.1	2.4	6.4	1.9	0.36	0.062	1.4	2.7	0.27	1.1	0.02	0.33
19-May-93	25	15.1	2.9	0.04	0.1	2.3	6.3	1.5	0.24	0.063	0.5	2.1	0.26	0.8	0.03	0.07
10-Nov-93	45	16	6.5	L 0.0200	0.13	1.9	6.1	1.7	0.4	0.1	1	2.2	0.32	1.1	0.02	0.19
24-May-94	20	16.4	4	L 0.0200	0.06	1.5	5.9	1.7	0.27	0.06	0.9	2.4	0.2	0.74	0.01	0.09

23-Nov-94	35	17.6	5.5	L 0.0200	0.08	1.9	6.2	2	0.37	0.08	1	2.7	0.21	1.2	0.02	0.2
19-Sep-95	35	17.6	5.5	L 0.0200	0.05	2.1	6.3	1.8	0.302	0.056	0.98	2.05	0.21	0.987	0.02	0.17
06-May-96	35	18.4	3.4	L 0.0200	0.06	1.6	6.2	1.9	0.31	0.084	1.02	2.72	0.25	0.98	0.02	0.15
01-Oct-96	25	20.5	4.9	L 0.0200	0.09	2.6	6.4	1.9	0.35	0.063	0.95	2.52	0.2	1.18	L 0.0100	0.09

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Select Area :

Long Pond
Warren Lake
Cradle Lake
Branch Pond W
Glasgow Lake
John Dee Lake
Mica Hill Lake
Two Island lake
Lake of Islands
Gull Lake
Dundas Lake #4
Dundas Lake #3
White Hill Lake
Sunday Lake
Deer Lake
Indian Lake
Round Lake

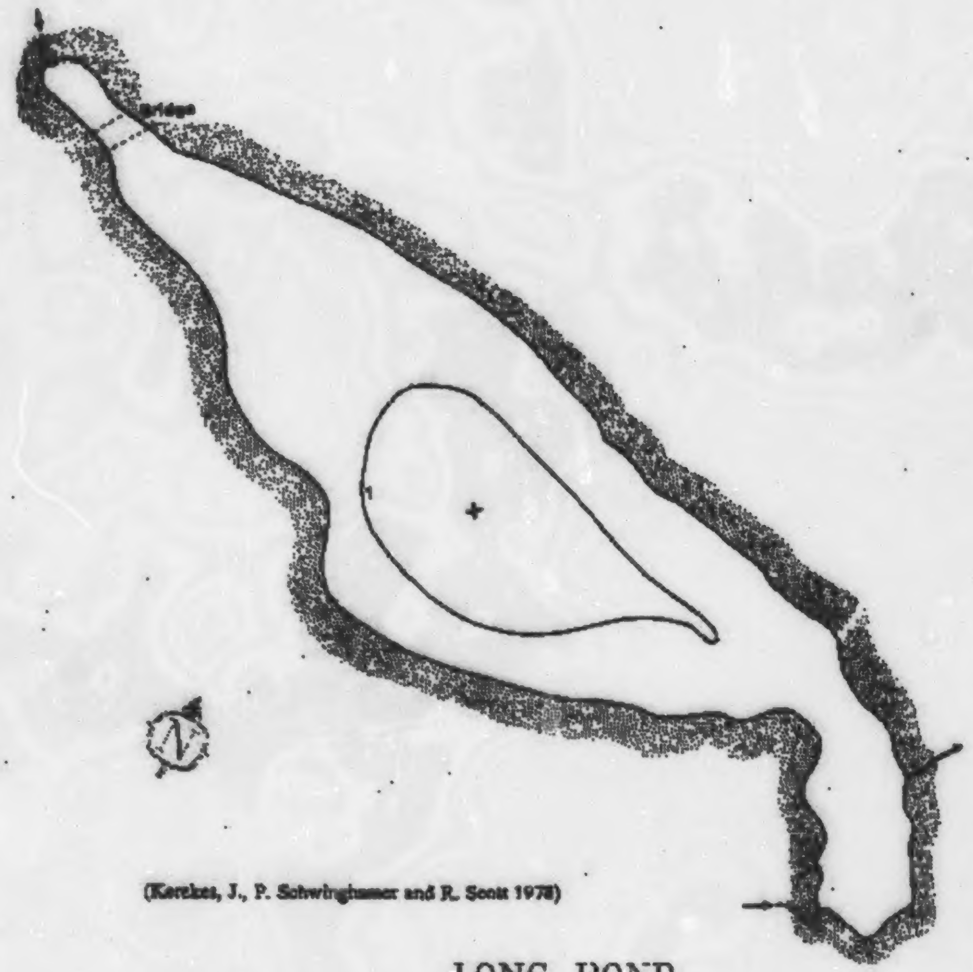
Long Pond

Drainage Basin	Station Number	Latitude	Longitude
Halfway Brook	NS01FD0039	46 48 50	60 26 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
410	6.60	5.05	40900	198.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.62	0.64	0.18	1.50	0.62

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY & IGNEOUS ROCK
SOILS	ROUGH MOUNTAIN LAND, SMALL AREAS OF PEAT
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE. BOGS WITH SPHAGNUM, LABRADOR TEA, LAMBKILL, JUNIPER, COTTONGRASS, BOG ROSEMARY
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED



(Kerekes, J., P. Schwinghamer and R. Scott 1978)

LONG POND

SCALE 1 cm. = 27 meters

1 metre contours

Long Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	5	34.7	2.4	L 0.0100	0.06	3.9	6.7	3.6	0.61	0.1	2.4	4.9	0.48	1.5	L 0.0100	0.039
29-May-91	10	41	2.9	0.01	0.08	2.6	6	4.3	0.76	0.1	2.6	7.3	0.56	1.8	0.02	0.03
07-Jul-92	125	35	3.1	L 0.0100	0.09	4.5	6.8	3.9	0.63	0.11	1.9	5.8	0.59	1.8	0.01	0.06
21-Oct-92	80	30	6.8	L 0.0200	0.15	2	6.2	3.4	0.61	0.24	2	5.1	0.34	1.1	0.01	0.17
01-Jun-93	20	32.9	2.8	0.03	0.09	4.1	6.6	3.7	0.61	0.12	2.5	5.3	0.55	1.4	L 0.0100	0.029
26-Oct-93	20	31	4.5	L 0.0200	0.09	4.9	6.7	3.9	0.68	0.083	2.7	5.6	0.56	1.52	0.01	0.05
22-May-94	15	35	4.4	0.02	0.07	4	6.5	3.7	0.67	0.11	2.4	5.4	0.49	1.64	L 0.0100	0.028
24-Oct-94	20	39	5	L 0.0200	0.09	3.4	6.4	4.1	0.75	0.12	2.4	6.5	0.55	1.7	0.03	0.05
27-May-95	10	44	3.7	0.02	0.08	3.6	6.4	4.5	0.84	0.084	2.4	8.5	0.57	1.8	0.01	0.026
08-Oct-96	25	40.1	5.1	L 0.0200	0.14	4.2	6.7	4.8	0.8	0.22	1.98	7.6	0.6	1.8	0.02	0.03

01-Jun-97	25	37	3.4	L 0.0200	0.07	4.23	6.6	4.18	0.69	0.11	2.07	6.55	0.53	1.62	L 0.0100	0.04
18-Oct-97	15	39.8	4.3	L 0.0200	0.06	4.8	6.7	4.19	0.7	0.083	2.15	6.35	0.44	1.98	0.01	0.06
30-May-98	15	34.8	4.9	L 0.0200	0.05	4.3	6.38	3.72	0.6	0.15	2.21	5.21	0.47	1.37	0.01	0.05
19-Oct-98	5	38.1	2.4	L 0.0200	0.08	4.82	6.75	4.48	0.65	0.039	2.56	5.61	0.52	1.57	L 0.0100	0.04
08-Jun-99	20	37.1	2.6	L 0.0200	0.19	4.51	6.65	4.02	0.65	0.097	2.25	5.8	0.6	1.52	0.005	L 0.0500
09-Nov-99	14	38.8	4.4	L 0.0200	0.08	4.09	6.81	4.25	0.72	0.0969	2.11	6.67	0.51	1.62	0.00804	L 0.0500
17-May-00	8	38.7	2.4	L 0.0200	0.04	3.94	6.68	4.18	0.74	0.068	2.23	6.77	0.47	1.63	0.00418	L 0.0500
11-Oct-00	7	39	2	L 0.0200	0.04	5.69	6.79	4.42	0.81	0.0618	2.52	6.84	0.52	1.83	0.0176	0.06

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Warren Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Warren Brook	NS01FD0040	46 42 50	60 23 39

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15.0	89.8	32.4	14278200	3.63

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.96	1.95	0.59	31.00	15.90

GEOLOGY	CARBONIFEROUS WINDSOR, PRECAMBRIAN ALTERED SEDIMENTARY & IGNEOUS ROCK
SOILS	ROUGH MOUNTAIN LAND, GIBRALTAR LOAM, SMALL AREAS OF BAYSWATER LOAM
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, MAPLE, HEMLOCK, POPLAR, SOME PINE, OAK
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Warren lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	60	29.2	5.8	L 0.0100	0.08	1.9	6	3.2	0.54	0.22	2	4.4	0.25	1.1	0.02	0.1
29-May-91	60	31	5	0.02	0.11	1.4	5.8	3.5	0.59	0.23	2.2	6	0.32	1.1	0.05	0.17
07-Jul-92	65	25	4.8	0.01	0.09	2.2	6.4	3	0.48	0.2	1.6	4.5	0.29	1.2	0.03	0.12
21-Oct-92	25	36	3.1	L 0.0200	0.22	4.6	6.6	4.1	0.73	0.095	2.5	5.9	0.61	1.7	0.02	0.08
30-May-93	70	24.8	5.8	L 0.0100	0.13	1.4	5.9	3	0.46	0.26	1.8	4.3	0.31	0.88	0.03	0.13
26-Oct-93	70	27	9.2	0.02	0.14	2.6	6.2	3.6	0.64	0.28	2.2	5.5	0.32	1.13	0.05	0.2
21-May-94	60	28	8.7	0.02	0.13	1.8	5.8	3.1	0.57	0.28	1.9	4.5	0.3	0.99	0.02	0.1
04-Nov-94	65	34	9.7	L 0.0200	0.13	1.8	5.7	3.8	0.68	0.28	1.9	5.8	0.36	1.2	0.05	0.2
26-May-95	60	33	3.7	0.03	0.1	1.2	5.7	3.7	0.61	0.27	1.8	6.5	0.34	0.91	0.03	0.13
21-Oct-96	85	33.7	10.6	L 0.0200	0.09	2.5	6.2	4.2	0.79	0.44	1.74	6.71	0.36	1.43	0.06	0.2

02-Jun-97	60	27.8	6	L 0.0200	0.08	2.01	6	3.44	0.55	0.28	1.51	5.26	0.32	1.01	0.02	0.14
18-Oct-97	65	37.8	8.6	L 0.0200	0.07	3.24	6.3	4	0.74	0.3	1.81	6.5	0.23	1.65	0.02	0.16
30-May-98	55	23.7	6.6	L 0.0200	0.05	1.43	5.83	2.78	0.4	0.23	1.31	3.88	0.26	0.62	0.02	0.1
19-Oct-98	90	31.2	8.6	L 0.0200	0.08	2.22	5.93	3.72	0.58	0.27	1.74	5.02	0.38	1.18	0.02	0.12
27-May-99	59	25.3	5	L 0.0200	0.08	1.68	6.04	3.07	0.45	0.237	1.47	4.26	0.31	0.8	0.038	0.149
17-May-00	43	32.5	5.3	0.02	0.06	1.08	6.1	3.85	0.64	0.195	2.07	5.99	0.28	1.06	0.0231	0.125
11-Oct-00	37	34.9	4.9	L 0.0200	0.04	2.66	6.46	4.08	0.72	0.169	2.17	6.39	0.31	1.36	0.00183	L 0.0500

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Cradle Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Warren Brook	NS01FD0041	46 43 45	60 25 54

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
260	9.8	0.96	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.8	0.78	0.21	0.0	0.0

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY & IGNEOUS ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

	COLOUR_AP REL UNITS	SP_COND USIE/CM	DOC MG/L	N_DIS_NO3 MG/L	N_TOT MG/L	ALK_GRAN MG/L	PH PH UNITS	NA_DIS MG/L	MG_DIS MG/L	AL_EXT MG/L	SO4_DIS MG/L	CL_DIS MG/L	K_DIS MG/L	CA_DIS MG/L	MN_EXT MG/L	FE_EXT MG/L
6-Jun-90	5	28.1	2.4	0.01	0.08	1.4	6	3.5	0.35	0.035	2	5.1	0.23	0.73	L 0.0100	0.026
19-Oct-90	10	34	3.1	0.02	0.1	1.7	6	3.7	0.55	0.11	2.7	5.3	0.36	0.82	0.01	0.022
29-May-91	20	32	3.6	0.02	0.1	1.1	5.9	3.8	0.59	0.18	2.5	6.6	0.35	0.95	0.02	0.028
7-Jul-92	60	28	3.6	0.01	0.08	1.6	6.1	3.5	0.48	0.15	1.8	5.5	0.34	0.89	0.02	0.017
21-Oct-92	30	30	3.1	L 0.0200	0.14	1.1	6	3.6	0.56	0.12	2.4	5.7	0.38	0.84	0.02	
31-May-93	30	27.4	3.9	0.02	0.11	0.8	5.8	3.4	0.5	0.21	2.3	5.4	0.3	0.83	0.03	0.054
4-Nov-93	25	25	5.7	0.02	0.11	1.4	5.9	3.5	0.54	0.2	2.5	5.9	0.37	0.79	0.02	0.031
21-May-94	30	27	7	0.03	0.09	0.7	5.4	3	0.48	0.24	2.2	4.6	0.24	0.84	0.01	0.04
4-Nov-94	20	32	5.6	L 0.0200	0.11	0.8	5.8	3.6	0.56	0.16	2.2	6.1	0.38	0.86	0.02	0.027
17-Jun-95	20	34	6.3	0.02	0.05	-0.1	4.9	4.1	0.6	0.17	2.3	7	0.31	0.88	0.01	0.026
8-Oct-96	25	33.4	5.4	L 0.0200	0.08	1	5.7	4.4	0.65	0.24	2.21	7.26	0.31	0.96	0.02	0.028
12-Jun-97	30	31.6	4.5	L 0.0200	0.09	1.13	5.8	3.99	0.56	0.27	1.97	6.4	0.32	0.87	0.01	0.03
16-Oct-97	20	33.5	4.7	L 0.0200	0.06	1.17	6	3.84	0.52	0.14	2.08	6.45	0.21	0.92	0.01	0.02
22-Jun-98	20	29.7	4.3	L 0.0200	0.04	1.14	6.02	3.67	0.53	0.19	2.2	6.21	0.23	0.79	0.01	0.02
19-Oct-98	100	45	10.1	L 0.0200	0.07	2.8	6.15	5.21	0.85	0.33	2.19	8.38	0.41	1.88	0.01	0.11
3-Jun-99	28	31	3.4	L 0.0200	0.05	1.33	6.07	3.64	0.54	0.16	2.15	5.9	0.27	0.86	0.0087	L 0.0500

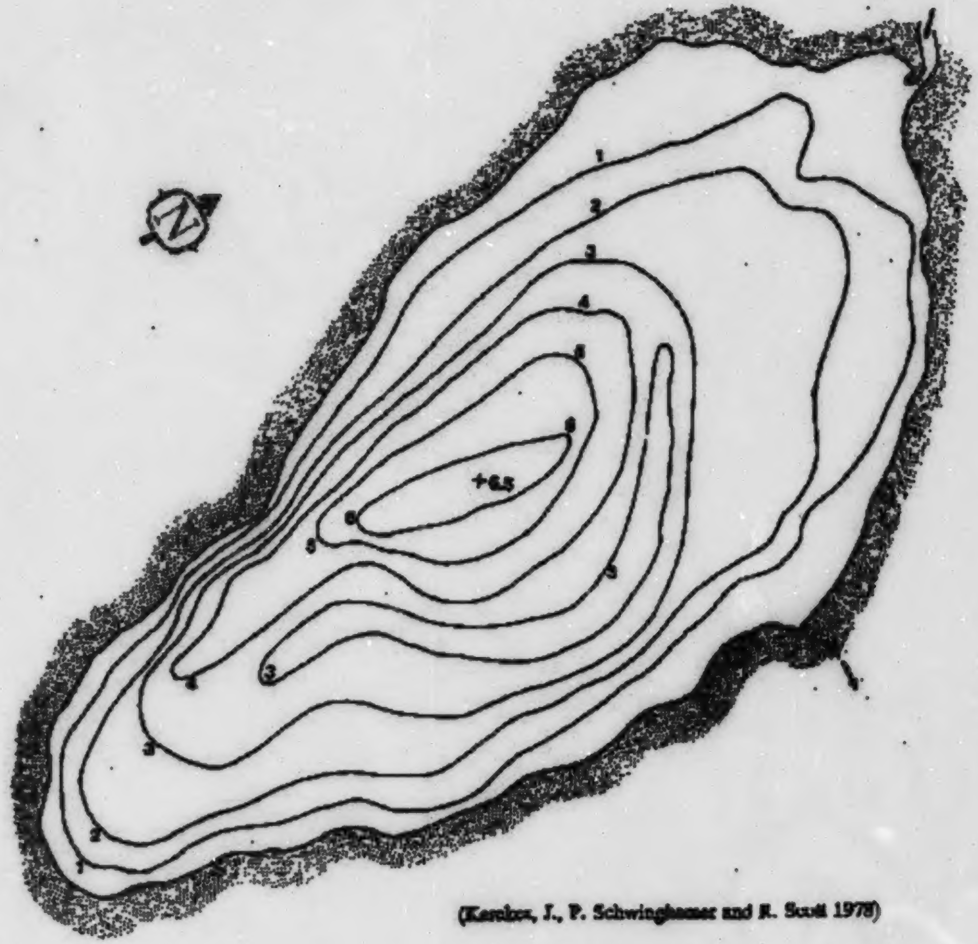
Branch Pond

Drainage Basin	Station Number	Latitude	Longitude
Black	NS01FD0045	46 44 30	60 27 15

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
290	14.9	5.43	362070	6.5

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.61	0.69	0.32	6.5	2.43

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED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(Kerekes, J., P. Schwinghamer and R. Scott 1978)

BRANCH POND

SCALE 1 cm. = 25 metres

1 meter contours

Branch Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	80	28.7	8	L 0.0100	0.09	-0.5	4.8	3	0.39	0.37	2.1	4.2	0.23	0.4	0.01	0.09
29-May-91	80	18	5.4	L 0.0100	0.1	0.3	5.2	2.3	0.24	0.24	1.3	3	0.2	0.29	0.02	0.14
29-May-91	75	18	5.4	L 0.0100	0.1	0.4	5.2	2.3	0.26	0.26	1.3	2.9	0.19	0.29	0.03	0.13
29-May-91	75	18	5.8	L 0.0100	0.11	0.3	5.2	2.3	0.25	0.25	1.3	3	0.19	0.29	0.03	0.11
07-Jul-92	120	21	9.7	L 0.0100	0.14	0.2	5	2.5	0.33	0.37	0.9	3.3	0.18	0.52	0.02	0.21
21-Oct-92	170	37	14.7	L 0.0100	0.35	-0.9	4.6	3.3	0.61	0.52	2	5.5	0.44	0.72	0.03	0.34
22-May-93	95	18.3	6.7	L 0.0100	0.14	-0.1	5	2.2	0.26	0.29	1.1	2.7	0.26	0.36	0.02	0.13
28-Oct-93	125	38	18.8	0.02	0.22	-1.1	4.5	3.9	0.63	0.51	2.5	6.4	0.33	0.71	0.04	0.2
21-May-94	110	27	15.9	L 0.0200	0.19	-0.7	4.6	2.6	0.23	0.36	1.4	3.1	0.4	0.26	0.01	0.09
30-Oct-94	65	41	10.1	L 0.0200	0.09	-0.8	4.7	4	0.58	0.33	1.9	7.3	0.25	0.67	0.04	0.2

22-May-95	80	24	9.2	L 0.0200	0.1	-0.2	4.8	2.7	0.24	0.43	1.1	3.8	0.19	0.22	0.02	0.29
16-Oct-96	135	33.5	15.1	L 0.0200	0.11	0.2	4.7	3.9	0.61	0.69	1.42	6.18	0.26	0.6	0.05	0.46
24-May-97	110	21.2	9.9	L 0.0200	0.08	-0.48	4.7	2.34	0.18	0.49	1.03	2.69	0.25	0.17	0.01	0.27
24-Jun-97	85	19.4	7.4	L 0.0200	0.06	0.04	5.1	2.45	0.25	0.3	1.07	3.22	0.23	0.26	0.01	0.13
24-Jun-97	90	19.4	7.7	L 0.0200	0.09	0.14	5.1	2.57	0.25	0.33	1.06	3.3	0.25	0.24	0.01	0.13
24-Jun-97	85	19.3	7.8	L 0.0200	0.06	0.1	5.1	2.51	0.24	0.31	1.11	3.22	0.23	0.22	0.01	0.13
20-Oct-97	120	38	14.2	L 0.0200	0.13	0.13	4.8	4.12	0.56	0.46	1.56	6.53	0.14	0.77	0.03	0.29
12-Jun-98	80	18.8	8.1	L 0.0200	0.07	0.43	5.12	2.17	0.22	0.32	0.91	2.9	0.17	0.27	0.01	0.17
29-Oct-98	105	40.5	14.8	L 0.0200	0.11	-0.47	4.62	4.42	0.64	0.46	2.04	6.56	0.38	0.73	0.04	0.26
10-Jun-99	76	18.3	5.6	L 0.0200	0.05	0.66	5.3	2.42	0.22	0.964	0.98	2.84	0.21	0.3	0.037	0.2
10-Oct-99	121	42.1	18.1	L 0.0200	0.11	-1.33	4.46	3.89	0.55	0.499	1.53	6.13	0.29	0.57	0.0275	0.244
17-May-00	55	27.1	6.8	L 0.0200	0.06	-0.7	5	3.05	0.39	0.218	1.92	4.66	0.23	0.42	0.018	0.114
11-Oct-00	98	31.6	9.1	L 0.0200	0.07	0.3	5.19	4.01	0.52	0.359	1.91	5.7	0.26	0.61	0.0203	0.22

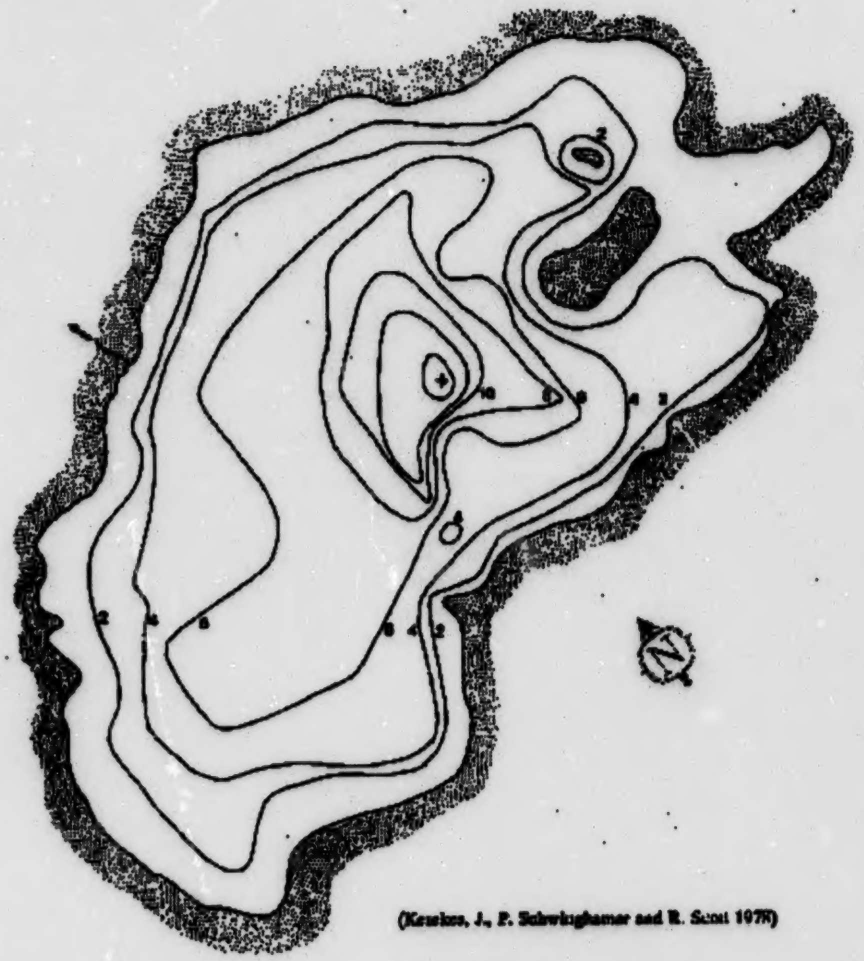
Glasgow Lake

Drainage Basin	Station Number	Latitude	Longitude
Glasgow Brook	NS01FD0046	46 49 09	60 29 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
410	23.90	1.43	1063550	2.16

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.48	0.82	0.42	4.45	14.6

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND, PEAT
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE. BOGS WITH SPHAGNUM, LABRADOR TEA, LAMBKILL, JUNIPER, COTTONGRASS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED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(Kerekes, J., P. Schwinghamer and R. Scott 1978)

GLASGOW LAKE

SCALE 1 cm = [illegible] meters

2 meter contours

Glasgow Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	80	19.4	6.5	L 0.0200	0.11	-0.1	5.1	2.2	0.27	0.17	1.3	2.8	0.17	0.33	0.02	0.23
30-May-91	70	27	4.7	0.02	0.13	-0.2	4.9	3.1	0.4	0.15	1.7	5.7	0.19	0.42	0.03	0.2
07-Jul-92	90	25	5.2	0.04	0.09	0.1	5	3	0.33	0.18	1.2	4.7	0.2	0.45	0.04	0.31
21-Oct-92	80	28	5	L 0.0200	0.16	-0.3	5	3.3	0.39	0.2	1.8	5	0.27	0.46	0.04	0.25
22-May-93	90	25.1	6.1	0.03	0.15	-0.7	4.8	2.9	0.34	0.19	1.6	4.5	0.23	0.43	0.03	0.22
03-Nov-93	85	25	9.8	0.05	0.14	-0.4	4.8	3.1	0.38	0.25	1.9	4.9	0.24	0.44	0.03	0.26
28-May-94	65	26	8.5	0.03	0.17	-0.6	4.9	2.7	0.38	0.18	1.5	4.1	0.25	0.43	0.03	0.15
06-Nov-94	65	30	8	L 0.0200	0.23	-0.2	5	3.3	0.41	0.21	1.7	5.2	0.4	0.51	0.02	0.3
04-Jun-95	60	32	7	0.03	0.25	0.1	5.2	3.7	0.43	0.18	1.6	6.5	0.47	0.45	0.03	0.25
19-Oct-96	90	33.6	10.1	L 0.0200	0.11	-0.4	4.7	4	0.49	0.3	1.67	6.5	0.27	0.44	0.03	0.21

09-Jun-97	75	27.8	6.4	L 0.0200	0.11	-0.1	4.9	3.39	0.37	0.2	1.3	5.47	0.29	0.39	0.03	0.18
16-Oct-97	85	31.6	8.5	L 0.0200	0.11	-0.03	5	3.43	0.4	0.2	1.44	5.62	0.19	0.53	0.04	0.28
23-Jun-98	55	27	6.3	L 0.0200	0.1	0.07	5.13	3.17	0.34	0.17	1.3	5.36	0.28	0.41	0.03	0.17
27-Oct-98	85	29.2	7.4	L 0.0200	0.13	0.16	5.04	3.69	0.39	0.17	1.53	5.3	0.29	0.52	0.03	0.23
12-Jun-99	60	34.1	5	L 0.0200	0.6	1.55	5.95	4.34	0.35	0.159	1.38	7.02	0.93	0.43	0.029	0.233
08-Oct-99	146	41	18.1	L 0.0200	0.14	-1.4	4.45	3.65	0.51	0.3377	1.45	5.72	0.3	0.53	0.0207	0.276
17-May-00	60	30.1	6.2	0.03	0.11	-0.94	4.83	3.3	0.41	0.146	1.61	5.43	0.2	0.43	0.0291	0.19
11-Oct-00	56	28	4.6	L 0.0200	0.05	-0.58	5.09	3.43	0.42	0.162	1.75	5.66	0.22	0.49	0.0376	0.22

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 11:43:27

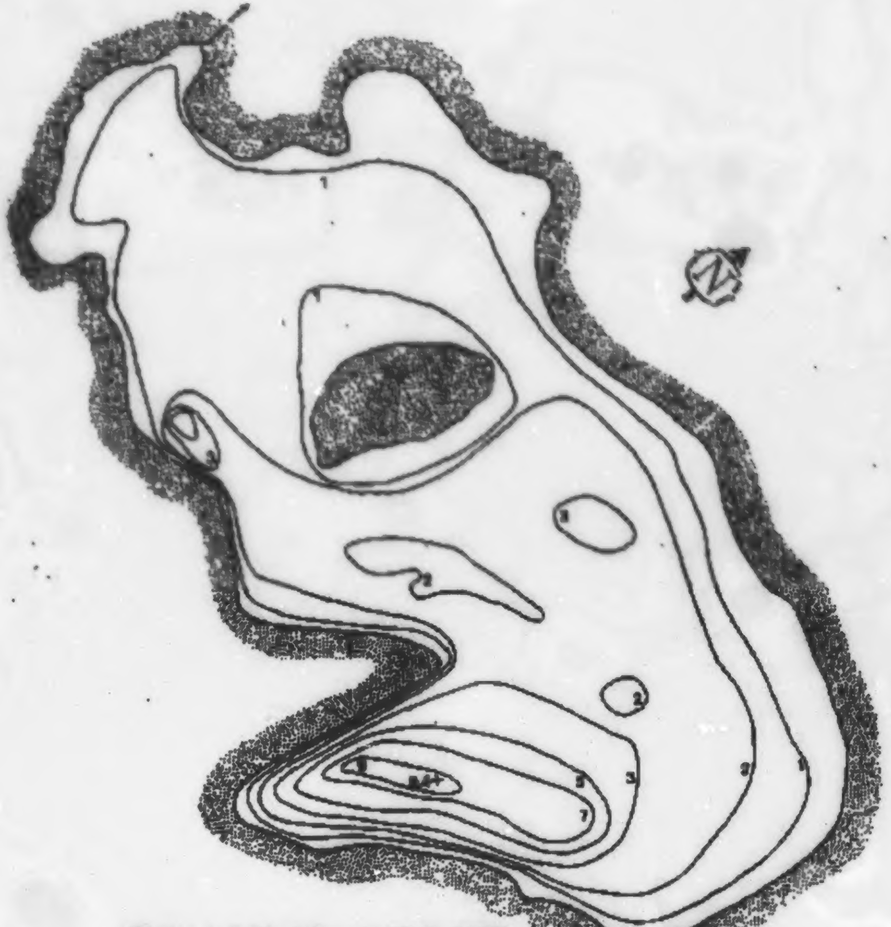
John Dee Lake

Drainage Basin	Station Number	Latitude	Longitude
Middle Aspy	NS01FD0047	46 48 50	60 31 09

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
410	24.4	1.384	500200	4.6

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.9	0.86	0.49	9.4	2.05

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND, SMALL AREAS OF PEAT
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE. BOGS WITH SPHAGNUM, LABRADOR TEA, LAMBKILL, JUNIPER, COTTONGRASS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED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(Karekas, J., P. Schwinghamer and R. Scott 1978)

JOHN DEE LAKE

SCALE 1 cm = 37.5 meters

1 meter contours

John Dee Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	90	26.1	6.7	L 0.0100	0.12	0.7	5.4	3	0.39	0.21	1.8	3.9	0.23	0.69	0.03	0.17
30-May-91	80	25	5.7	L 0.0100	0.13	1	5.6	3.2	0.41	0.2	1.7	5.2	0.25	0.72	0.03	0.16
07-Jul-92	100	23	7.7	L 0.0100	0.15	1.3	5.7	3	0.39	0.24	1.1	4.1	0.27	0.7	0.03	0.18
21-Oct-92	110	33	8.9	L 0.0200	0.26	1.2	5.5	4.2	0.62	0.34	2.1	5.9	0.44	1	0.03	0.25
22-May-93	100	23.5	7.2	0.01	0.2	0.8	5.4	2.9	0.34	0.26	1.4	4	0.34	0.65	0.04	0.26
03-Nov-93	125	37	18.5	0.03	0.25	-0.5	4.6	4	0.66	0.4	2.3	6.5	0.29	0.9	0.04	0.29
28-May-94	80	24	10.9	L 0.0200	0.17	0.5	5.3	2.8	0.41	0.24	1.5	3.7	0.26	0.69	0.02	0.15
06-Nov-94	110	45	15.9	L 0.0200	0.19	-0.1	4.8	4.6	0.8	0.28	2.5	7.8	0.27	1.3	0.03	0.26
04-Jun-95	80	28	9.4	L 0.0200	0.13	0.6	5.4	3.4	0.42	0.22	1.4	5.2	0.26	0.7	0.06	0.21
19-Oct-96	100	62.7	14.2	0.03	0.18	-1.4	4.4	6.8	1.12	0.29	2.43	13.5	0.37	1.39	0.05	0.16

09-Jun-97	95	22.9	8.5	L 0.0200	0.06	0.54	5.2	3.06	0.32	0.27	1.19	4.07	0.3	0.51	0.03	0.2
16-Oct-97	110	36.8	13.1	L 0.0200	0.12	1.43	5.5	4.26	0.6	0.31	1.53	6.5	0.23	1.17	0.03	0.29
23-Jun-98	75	24.5	8	L 0.0200	0.08	1.16	5.62	3.05	0.49	0.24	1.23	4.55	0.22	0.61	0.02	0.15
27-Oct-98	85	36.8	12.1	L 0.0200	0.14	1.38	5.46	4.69	0.65	0.27	1.88	6.44	0.27	1.15	0.03	0.22
12-Jun-99	71	23.2	6.3	L 0.0200	0.23	1.68	5.96	2.9	0.32	0.169	1.14	3.75	0.4	0.59	0.0184	0.126
08-Oct-99	143	43.9	20.5	0.02	0.24	-0.12	4.72	4.25	0.75	0.4168	1.43	7.17	0.31	1.11	0.0357	0.342
17-May-00	60	30.3	7.3	L 0.0200	0.07	0.06	5.18	3.55	0.48	0.173	1.74	5.32	0.23	0.73	0.0239	0.159
11-Oct-00	71	32	7.5	L 0.0200	0.1	1.73	6.19	4.31	0.61	0.212	1.94	6.25	0.29	1.04	0.0121	0.19

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 13:51:51

Mica Hill Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Halfway Brook	NS01FD0048	46 48 00	60 62 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
335	5.0	2.68	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.09	0.37	0.22	0.0	0.0

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND, SMALL AREAS OF PEAT
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE. BOGS WITH SPHAGNUM, LABRADOR TEA, LAMBKILL, JUNIPER, COTTONGRASS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Mica Hill Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	100	24.4	9.1	L 0.0100	0.14	0.4	5.1	2.9	0.3	0.32	1.6	3.5	0.19	0.56	1.04	0.24
30-May-91	85	24	6.6	L 0.0100	0.17	0.9	5.3	3.2	0.3	0.28	1.6	4.5	0.21	0.57	0.03	0.19
07-Jul-92	175	26	12.6	L 0.0100	0.22	0.6	5	3.2	0.39	0.53	1.1	3.9	0.15	0.89	0.05	0.41
21-Oct-92	200	47	17.2	L 0.0200	0.36	-0.7	4.6	4.6	0.79	0.6	2.7	8.1	0.48	1.3	0.1	0.36
29-May-93	150	22.1	10.1	L 0.0100	0.24	0.5	5.1	2.8	0.35	0.45	1.3	3.4	0.29	0.73	0.04	0.42
08-Nov-93	175	34	21.9	L 0.0200	0.25	-0.7	4.5	3.4	0.52	0.46	2.3	5.5	0.22	0.83	0.07	0.52
28-May-94	100	24	13.2	L 0.0200	0.15	0.7	5.1	2.7	0.3	0.35	1.4	3.3	0.27	0.61	0.03	0.21
06-Nov-94	80	43	12.5	L 0.0200	0.17	-0.2	4.8	4.5	0.62	0.38	2.2	8.1	0.31	1.1	0.08	0.24
04-Jun-95	85	24	9.7	L 0.0200	0.13	0.9	5.2	3.2	0.26	0.33	1.2	4.1	0.23	0.5	0.03	0.2
19-Oct-96	100	46.1	15.4	L 0.0200	0.11	-0.6	4.6	5.4	0.77	0.51	1.89	9.53	0.29	1.01	0.07	0.15

09-Jun-97	100	23.3	9.1	L 0.0200	0.12	1.07	5.3	3.06	0.27	0.41	1.15	4	0.32	0.53	0.03	0.21
19-Oct-97	110	44.3	14.7	L 0.0200	0.11	0.76	5.1	4.97	0.58	0.41	1.59	8.43	0.17	1.33	0.08	0.4
23-Jun-98	85	24.1	8.6	L 0.0200	0.12	1.15	5.55	2.99	0.33	0.32	1.3	4.33	0.28	0.58	0.02	0.15
28-May-99	117	22.4	9.5	L 0.0200	0.14	0.53	5.03	2.93	0.25	0.34	1.09	3.1	0.29	0.48	0.029	0.29
08-Oct-99	139	38.9	20.1	L 0.0200	0.17	0.08	4.81	4.15	0.64	0.5438	1.73	6.17	0.29	1	0.0483	0.252
17-May-00	61	31	7.9	L 0.0200	0.09	-0.05	5.24	3.9	0.41	0.266	1.97	5.62	0.23	0.71	0.0358	0.152
11-Oct-00	104	39.4	12.4	L 0.0200	0.09	0.71	5.2	5.14	0.64	0.398	2.25	7.85	0.2	1.2	0.052	0.31

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:47:47

Two Island Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Clyburn	NS01FD0013	46 39 33	60 35 08

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
470	25.6	1.83	363520	8.09

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.18	0.64	0.63	5.5	1.42

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY & IGNEOUS ROCK
SOILS	ROUGH MOUNTAIN LAND, SMALL AREAS OF PEAT
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE. BOGS WITH SPHAGNUM, LABRADOR TEA, LAMBKILL, JUNIPER, COTTONGRASS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Two Island Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	40	16	3.5	L 0.0100	0.1	0.2	5.4	1.8	0.19	0.11	1	2.2	0.19	0.22	0.02	0.23
29-May-91	60	16	3	L 0.0100	0.08	0.1	5.3	2	0.22	0.1	1.2	3	0.2	0.29	0.04	0.23
07-Jul-92	75	15	5	L 0.0100	0.11	2.2	6.2	1.7	0.36	0.11	0.9	2.4	0.15	0.52	0.01	0.22
21-Oct-92	95	20	6.2	L 0.0200	0.19	0.1	5.1	2.6	0.34	0.19	1.4	3.4	0.22	0.42	0.01	0.54
04-Jun-93	90	15.1	5.4	L 0.0100	0.17	-0.2	5.1	1.8	0.17	0.14	0.8	2.2	0.24	0.37	0.02	0.26
21-Oct-93	75	20	8.6	L 0.0200	0.16	0.6	5.4	2.7	0.35	0.18	1.6	3.6	0.24	0.47	0.01	0.44
05-Jun-94	55	16.2	6.4	L 0.0200	0.13	-0.1	5.2	1.8	0.22	0.13	1	2.5	0.21	0.33	0.02	0.16
15-Oct-94	90	24	9.7	L 0.0200	0.13	0.2	5	2.8	0.37	0.18	1.5	3.6	0.23	0.53	0.02	0.51
12-Jun-95	65	17.1	7.1	L 0.0200	0.05	-0.2	5.1	2	0.22	0.14	0.84	2.8	0.18	0.22	0.02	0.2
21-Sep-95	62	20.9	7	L 0.0200	0.04	0.6	5.4	2.8	0.312	0.14	1.12	3.53	0.17	0.363	0.01	0.35

03-Jun-96	60	20	5.5	L 0.0200	0.07	-0.1	5.2	2.3	0.25	0.13	1.03	3.14	0.2	0.33	0.02	0.29
25-Oct-96	75	33.9	7.6	L 0.0200	0.06	-0.8	4.7	3.8	0.58	0.16	1.5	7.08	0.16	0.57	0.03	0.39
10-Jun-97	145	22.9	11.2	L 0.0200	0.17	-0.22	4.8	2.73	0.25	0.096	0.88	3.31	0.32	0.18	L 0.0100	0.4
16-Oct-97	100	29.4	9.2	L 0.0200	0.08	0.43	5.1	3.21	0.41	0.17	1.31	5.23	0.11	0.6	0.02	0.5
21-Jun-98	45	16.1	5.9	L 0.0200	0.05	0.47	5.32	1.86	0.22	0.11	0.86	2.79	0.14	0.28	0.02	0.18
19-Oct-98	85	28.1	9.1	L 0.0200	0.1	-0.09	4.88	3.28	0.42		1.75	4.17	0.22	0.62	0.02	0.35
19-Jun-99	52	15.6	3.7	L 0.0200	0.07	0.63	5.41	1.95	0.2		0.87	2.57	0.18	0.29		0.162
29-Sep-99	118	24.1	11.9	L 0.0200	0.11	0.45	5.06	2.57	0.37	0.3205	1.05	3.26	0.22	0.45	0.0281	0.717
17-May-00	42	20.2	4.7	L 0.0200	0.07	-0.66	5.1	2.29	0.26	0.0902	1.32	3.23	0.21	0.33	0.0227	0.162
20-Jun-98	85	17.2	7.1	L 0.0200	0.07	0.52	5.24	2.08	0.21	0.16	0.83	2.83	0.16	0.29	0.01	0.22

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:26:45

Lake of Islands

No Map

Drainage Basin	Station Number	Latitude	Longitude
Warren Brook	NS01FD0015	46 44 30	60 30 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
427	32.9	6.6	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.6	0.98	0.67	0.0	0.0

GEOLOGY	PRECAMBRIAN ALTERED SEDIMENTARY & IGNEOUS ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Lake of Islands Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	100	20.7	8.3	L 0.0100	0.12	0.1	5.2	2.3	0.3	0.29	1.6	2.7	0.16	0.35	0.03	0.23
29-May-91	100	19	6.3	L 0.0100	0.15	0.8	5.3	2.4	0.29	0.24	1.3	3.1	0.22	0.34	0.03	0.27
07-Jul-92	145	23	12.6	L 0.0100	0.18	0.3	5.1	2.9	0.39	0.37	1.2	3.8	0.22	0.52	0.02	0.3
21-Oct-92	200	37	14.7	0.02	0.38	0.1	4.8	3.7	0.77	0.54	2	5.8	0.48	0.95	0.05	0.51
24-May-93	110	19.5	8.1	L 0.0100	0.19	0.1	5.1	2.3	0.35	0.28	1.2	3	0.26	0.52	0.03	0.23
21-Oct-93	130	36	20.3	0.02	0.3	0.3	4.8	4.3	0.79	0.56	2.4	6.9	0.38	0.84	0.04	0.33
23-May-94	100	20	13.5	L 0.0200	0.13	-0.5	4.8	2.1	0.28	0.31	1.1	2.3	0.19	0.37	0.02	0.18
30-Oct-94	85	43	11.9	L 0.0200	0.18	-0.3	4.8	4.3	0.84	0.45	2.1	9.3	0.28	0.95	0.07	0.4
20-May-95	95	21	10.5	L 0.0200	0.13	-0.6	4.9	2.4	0.22	0.27	0.96	3	0.2	0.16	0.01	0.16
29-Oct-95	109	53.1	13.5	L 0.0200	0.08	-0.1	4.8	6.3	1.05	0.48	2.11	11.3	0.35	1.09	0.06	0.35

18-May-96	100	21.8	10	L 0.0200	0.07	0.2	5.1	2.6	0.27	0.34	1.11	2.89	0.22	0.35	0.02	0.24
16-Oct-96	135	32.2	15.4	L 0.0200	0.18	0.4	4.9	3.9	0.62	0.8	1.27	6.04	0.29	0.66	0.05	0.57
24-May-97	80	17.8	6.9	L 0.0200	0.08	-0.07	4.9	2.11	0.2	0.26	0.89	2.6	0.25	0.16	0.01	0.16
20-Oct-97	140	41.8	16.6	L 0.0200	0.11	0.36	4.9	4.46	0.69	0.48	1.65	7.34	0.13	0.88	0.05	0.4
13-Jun-98	90	18.7	8.6	L 0.0200	0.07	0.27	5.16	2.16	0.26	0.28	0.95	2.92	0.17	0.31	0.02	0.21
20-Oct-98	95	41.9	14	L 0.0200	0.14	0.6	5.03	4.97	0.84	0.43	2.01	7.66	0.31	1.02	0.05	0.32
10-Jun-99	90	17.7	7.2	L 0.0200	0.11	0.52	5.17	2.16	0.24	0.315	0.96	2.58	0.17	0.31	0.024	0.272
10-Oct-99	153	36.5	19.2	L 0.0200	0.16	0.12	4.82	3.93	0.68	0.5166	1.35	5.78	0.28	0.74	0.0466	0.485
17-May-00	67	25.6	7.5	L 0.0200	0.07	-0.22	5.19	3.03	0.4	0.231	1.8	4.32	0.24	0.48	0.0239	0.175
11-Oct-00	119	32.1	11.3	L 0.0200	0.11	0.91	5.48	4.4	0.66	0.368	2.03	6.14	0.28	0.72	0.0192	0.31

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Gull Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Clyburn	NS01FD0018	46 41 20	60 32 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
442	15.4	3.18	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.5	0.83	0.47	0.0	0.0

GEOLOGY	**DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE**
SOILS	**ROUGH MOUNTAIN LAND**
COVER	**FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**NOT SAMPLED**

Gull Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	80	17.6	6.2	L 0.0100	0.1	0.2	5.2	2	0.25	0.23	1.3	2.2	0.15	0.32	0.03	0.22
29-May-91	70	18	4.1	L 0.0100	0.1	0.4	5.2	2.1	0.26	0.2	1.3	3.2	0.23	0.35	0.05	0.22
07-Jul-92	105	18	7.8	L 0.0100	0.14	0.1	5.1	2	0.33	0.27	1	2.9	0.2	0.52	0.02	0.24
21-Oct-92	135	30	11.3	L 0.0200	0.3	-0.2	4.7	3.1	0.51	0.36	1.8	4.5	0.36	0.69	0.04	0.39
09-Aug-93	95	17.2	10.6	L 0.0200	0.18	0.9	5.3	2.5	0.28	0.27	1.3	2.9	0.41	0.42	0.03	0.28
21-Oct-93	100	24	14	L 0.0200	0.19	0.6	5	3.3	0.5	0.36	2	4.4	0.55	0.66	0.03	0.3
13-Jun-94	70	18.1	8.8	L 0.0200	0.11	0.5	5.1	1.9	0.26	0.22	1.1	2.5	0.22	0.39	0.03	0.16
09-Oct-94	110	29	15	L 0.0200	0.2	-0.1	4.8	2.9	0.44	0.35	1.7	3.6	0.34	0.63	0.03	0.29
19-Jun-95	100	21	11.6	L 0.0200	0.14	0.2	5	2.4	0.28	0.31	0.87	3.1	0.26	0.35	0.03	0.22
03-Nov-95	94	41.7	12.9	L 0.0200	0.07	-0.5	4.7	4.7	0.685	0.34	2.09	7.91	0.35	0.757	0.05	0.26

27-Sep-96	120	28.1	14.6	L 0.0200	0.11	-0.7	4.6	2.8	0.38	0.4	0.87	3.53	0.21	0.42	0.04	0.25
16-Oct-97	120	32.2	13.2	L 0.0200	0.1	0.14	5	3.44	0.47	0.36	1.55	5.31	0.12	0.78	0.05	0.36
13-Jun-98	60	14.9	6.5	L 0.0200	0.05	0.47	5.23	1.71	0.19	0.24	0.78	2.31	0.17	0.25	0.02	0.16
20-Oct-98	95	41.5	14.8	L 0.0200	0.13	-0.42	4.65	4.3	0.7	0.45	2.04	6.77	0.33	0.87	0.05	0.37
20-Jun-99	70	19.9	5.2	L 0.0200	0.12	0.9	5.5	2.18	0.22	0.188	0.91	2.75	0.26	0.37	0.0267	0.19
29-Sep-99										0.4465					0.0522	0.455
17-May-00	49	23	5	L 0.0200	0.08	-0.23	5.28	2.69	0.33	0.169	1.64	3.82	0.23	0.44	0.0325	0.164
11-Oct-00	81	26.9	7.9	L 0.0200	0.08	0.34	5.5	3.36	0.46	0.264	1.79	4.81	0.26	0.65	0.0201	0.24

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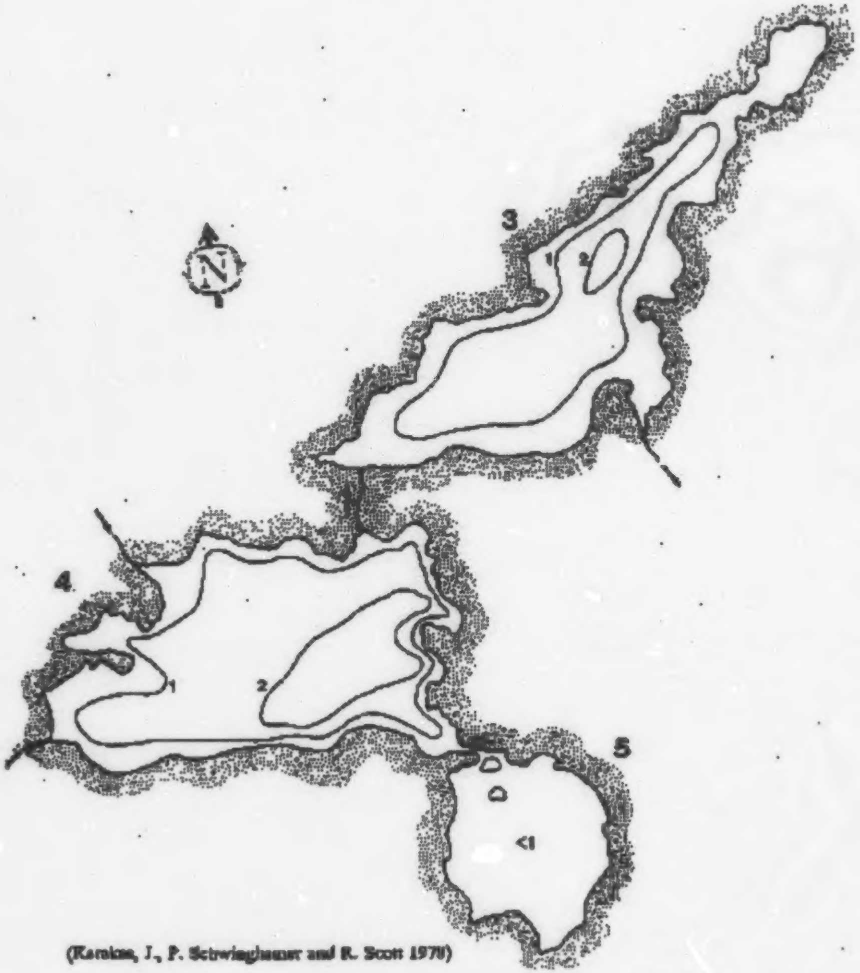
Dundas Lake #4

Drainage Basin	Station Number	Latitude	Longitude
Dundas Brook	NS01FD0019	46 42 24	60 32 25

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
442	16.3	4.73	247760	30.6

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.26	0.59	0.32	2.5	1.52

GEOLOGY	PRECAMBRIAN IGNEOUS & ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED



(Karakas, J., P. Schwinghamer and R. Scott 1970)

20 DUNDAS LAKES 4.3

SCALE 1 cm = 60 meters : meter contours

Dundas Lake 4

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	100	19.8	8	L 0.0100	0.11	-0.1	5.1	2.2	0.26	0.25	1.3	2.6	0.16	0.34	0.03	0.21
29-May-91	80	18	5.7	L 0.0100	0.13	0.2	5.2	2.1	0.27	0.25	1.2	3	0.16	0.33	0.02	0.15
07-Jul-92	160	23	12.6	L 0.0100	0.18	0.5	4.9	2.7	0.36	0.39	1	3.4	0.19	0.61	0.03	0.29
21-Oct-92	155	35	17	L 0.0200	0.44	-0.5	4.6	3.3	0.72	0.6	2	5.4	0.4	0.86	0.05	0.5
23-May-93	90	18.9	5.9	L 0.0100	0.12	-0.1	5	2.2	0.24	0.34	1.2	2.9	0.27	0.31	0.05	0.3
21-Oct-93	150	32	21.6	0.02	0.27	0.5	4.8	4	0.78	0.53	2.5	5.9	0.4	0.98	0.04	0.37
22-May-94	95	19.1	12.5	0.02	0.12	-0.1	4.9	1.9	0.24	0.28	1.5	2.2	0.2	0.31	0.02	0.14
19-Oct-94	95	47	14	0.02	0.14	-0.8	4.6	4.5	0.85	0.35	1.9	8.5	0.33	0.95	0.05	0.25
19-Jun-95	160	22	16.4	L 0.0200	0.09	-0.1	4.8	2.5	0.29	0.48	0.77	2.6	0.18	0.35	0.04	0.33
29-Oct-95	108	48.3	14.4	L 0.0200	0.07	0.1	4.8	5.7	0.918	0.41	2.03	9.76	0.34	1.04	0.05	0.33

19-May-96	95	20.5	9.6	L 0.0200	0.08	0.1	5.1	2.3	0.28	0.38	1.16	2.88	0.2	0.29	0.02	0.29
15-Jun-97	85	20.3	7.7	L 0.0200	0.1	-0.04	5	2.61	0.28	0.29	1.23	3.34	0.26	0.33	0.02	0.17
16-Oct-97	140	41.5	16.1	L 0.0200	0.11	-0.16	4.8	4.26	0.61	0.41	1.81	7.06	0.18	0.85	0.05	0.36
13-Jun-98	80	18.1	7.5	L 0.0200	0.1	0.44	5.15	2.07	0.21	0.25	0.92	2.87	0.18	0.27	0.02	0.2
07-Oct-98	100	34	18.5	L 0.0200	0.14	0.79	4.97	4.21	0.62	0.55	1.92	4.79	0.21	0.89	0.05	0.39
19-Jun-99	90	17	6.3	L 0.0200	0.11	0.7	5.35	2.13	0.21	0.233	0.97	2.54	0.23	0.34	0.0195	0.202
29-Sep-99	184	37.5	21.8	L 0.0200	0.16	0.31	4.86	3.53	0.61	0.5857	1.36	4.51	0.26	0.82	0.0476	0.494
17-May-00	71	24.2	7.6	L 0.0200	0.06	-0.35	5.15	2.89	0.35	0.211	1.71	3.69	0.28	0.43	0.0225	0.154
11-Oct-00	139	34.2	14.1	L 0.0200	0.12	1.31	5.43	4.37	0.71	0.398	1.9	5.79	0.3	0.94	0.0185	0.29

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Dundas Lake #3

Drainage Basin	Station Number	Latitude	Longitude
Dundas Brook	NS01FD0020	46 42 50	60 32 20

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
442	13.0	5.98	113100	84.7

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.48	0.88	0.26	2.10	0.87

GEOLOGY	**PRECAMBRIAN IGNEOUS & ALTERED SEDIMENTARY ROCK**
SOILS	**ROUGH MOUNTAIN LAND**
COVER	**FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**NOT SAMPLED**

Dundas Lake 3

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	100	19.6	7.9	L 0.0100	0.11	0.1	5.1	2.1	0.27	0.28	1.4	2.5	0.16	0.35	0.03	0.19
29-May-91	85	17	5.4	L 0.0100	0.13	0.4	5.1	2	0.24	0.22	1.2	2.7	0.16	0.27	0.02	0.17
07-Jul-92	145	22	11	L 0.0100	0.18	0.1	5	2.6	0.39	0.39	1.1	3.5	0.2	0.52	0.02	0.33
21-Oct-92	135	35	16	L 0.0200	0.35	0.1	4.7	3.5	0.71	0.5	2.1	5.7	0.4	0.91	0.04	0.41
23-May-93	100	18.4	6.9	L 0.0100	0.16	-0.4	4.9	2.1	0.24	0.27	1.1	2.7	0.26	0.31	0.03	0.18
21-Oct-93	140	31	20.8	0.02	0.27	0.6	4.9	4	0.76	0.51	2.3	6	0.36	0.92	0.06	0.36
22-May-94	95	19	12	L 0.0200	0.11	-0.6	4.8	1.9	0.24	0.27	1	2	0.21	0.28	0.02	0.14
19-Oct-94	125	38	17	L 0.0200	0.13	-0.4	4.7	3.7	0.67	0.49	1.8	6	0.28	0.74	0.05	0.3
19-Jun-95	145	21	14.6	L 0.0200	0.09	0.9	5.3	2.4	0.28	0.46	0.79	2.5	0.18	0.35	0.03	0.3
29-Oct-95	111	46.5	13.9	L 0.0200	0.06	-0.1	4.9	5.7	0.884	0.47	1.94	9.32	0.34	1.02	0.07	0.55

19-May-96	95	20.5	8.5	L 0.0200	0.08	0.2	5.2	2.4	0.26	0.33	1.11	2.85	0.23	0.31	0.02	0.2
15-Jun-97	90	19.2	7.6	L 0.0200	0.06	-0.14	5	2.34	0.26	0.3	1.2	3.09	0.24	0.28	0.02	0.16
16-Oct-97	160	39.2	18.6	L 0.0200	0.12	0.52	4.8	4.08	0.62	0.53	1.73	6.37	0.13	0.92	0.06	0.4
13-Jun-98	80	18.1	7.5	L 0.0200	0.11	0.43	5.19	2.14	0.2	0.21	0.88	3	0.24	0.24	0.02	0.18
07-Oct-98	145	34.1	18	L 0.0200	0.13	0.66	4.97	4.09	0.64	0.5	1.9	5.02	0.2	0.87	0.05	0.38
19-Jun-99	91	17.3	6.3	L 0.0200	0.14	0.75	5.37	2.14	0.21	0.225	0.94	2.53	0.26	0.31	0.019	0.214
29-Sep-99	188	36.7	23.6	L 0.0200	0.15	0.07	4.76	3.66	0.64	0.6162	1.36	4.63	0.32	0.79	0.0543	0.533
17-May-00	67	24.1	7	L 0.0200	0.08	-0.48	5.09	2.79	0.35	0.224	1.74	3.64	0.25	0.43	0.0228	0.157
11-Oct-00	129	32.8	13.2	L 0.0200	0.12	0.86	5.44	4.22	0.65	0.401	1.9	5.7	0.28	0.84	0.0206	0.29

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Last Modified On: Tuesday, January 09, 2001 11:33:52

White Hill Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Clyburn Brook	NS01FD0021	46 42 15	60 34 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
488	29.0	2.77	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.6	0.86	0.6	0.0	0.0

GEOLOGY	PRECAMBRIAN IGNEOUS & ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

White Hill Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	100	17.7	6.7	L 0.0100	0.1	-0.1	5.1	1.8	0.21	0.19	1.1	2.3	0.16	0.28	L 0.0100	0.26
29-May-91	80	15	7.8	L 0.0100	0.12	0.1	5.1	1.8	0.17	0.16	1.1	2.4	0.15	0.24	0.01	0.2
07-Jul-92	135	19	8.9	L 0.0100	0.14	0.1	4.9	2	0.27	0.24	0.9	2.8	0.17	0.42	L 0.0100	0.3
21-Oct-92	160	30	12.4	L 0.0200	0.29	-0.5	4.6	2.8	0.47	0.34	1.7	4.2	0.27	0.54	0.02	0.45
23-May-93	75	14.9	4.3	L 0.0100	0.12	-0.1	5	1.7	0.14	0.15	0.8	2.2	0.19	0.2	0.01	0.19
13-Oct-93	105	25	12.7	0.04	0.2	0.8	5.1	3.5	0.44	0.33	2.1	4.9	0.44	0.56	0.01	0.41
22-May-94	80	16.7	9.4	L 0.0200	0.08	-0.5	4.8	1.5	0.17	0.18	0.9	1.8	0.17	0.13	L 0.0100	0.13
09-Oct-94	115	29	14.5	L 0.0200	0.19	-0.3	4.7	2.9	0.42	0.31	1.8	3.5	0.32	0.51	L 0.0100	0.31
02-May-95	70	17.9	7.8	L 0.0200	0.07	-0.4	4.9	1.9	0.18	0.15	0.72	2.8	0.17	0.1	L 0.0100	0.18
28-Oct-95	117	38.4	11.9	L 0.0200	0.08	-0.1	4.8	4.7	0.678	0.31	1.77	7.33	0.3	0.719	0.02	0.32

19-May-96	75	18	6	L 0.0200	0.07	0.06	5.2	2	0.2	0.24	0.91	2.68	0.18	0.27	L 0.0100	0.25
27-Sep-96	150	27.4	15.6	L 0.0200	0.11	-0.4	4.6	2.8	0.4	0.39	1.05	3.96	0.27	0.43	0.01	0.3
25-May-97	60	14.2	4.5	L 0.0200	0.05	0.01	5	1.66	0.14	0.2	0.69	2.18	0.21	0.16	L 0.0100	0.17
16-Oct-97	150	35.4	14.4	L 0.0200	0.11	-0.09	4.8	3.62	0.49	0.35	1.56	5.61	0.18	0.67	0.02	0.37
20-Jun-98	85	17.2	7.1	L 0.0200	0.07	0.52	5.24	2.08	0.21	0.16	0.83	2.83	0.16	0.29	0.01	0.22
20-Oct-98	115	30.7	13.3	L 0.0200	0.15	0.33	4.94	3.89	0.49	0.46	1.67	4.74	0.27	0.63	0.03	0.36
19-Jun-99	77	14.2	4.8	L 0.0200	0.1	0.65	5.42	1.9	0.16	0.131	0.7	2.15	0.21	0.22	0.006	0.212
29-Sep-99	166	28.3	18	L 0.0200	0.15	0.04	4.8	3.03	0.45	0.4845	1.15	3.7	0.25	0.49	0.017	0.464
17-May-00	61	21.2	6	L 0.0200	0.05	-0.66	5	2.35	0.26	0.143	1.45	3.24	0.21	0.34	0.00899	0.187
11-Oct-00	99	27.4	8.1	L 0.0200	0.11	-0.09	5.33	3.72	0.44	0.229	1.75	4.83	0.27	0.54	0.0155	0.29

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:29:05

Sunday Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Black Brook	NS01FD0022	46 44 08	60 37 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
482	14.90	3.66	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.0	0.62	0.51	0.0	0.0

GEOLOGY	**PRECAMBRIAN ALTERED SEDIMENTARY ROCK**
SOILS	**ROUGH MOUNTAIN LAND, PEAT**
COVER	**FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE. BOGS WITH SPHAGNUM, LABRADOR TEA,**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**NOT SAMPLED**

Sunday Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	110	20.1	8.8	L 0.0100	0.12	-0.2	4.9	2.1	0.25	0.29	1.3	2.4	0.14	0.26	0.02	0.32
30-May-91	105	20	6.1	L 0.0100	0.18	1.2	5.7	2.6	0.33	0.15	1.5	3.3	0.3	0.56	0.02	0.15
07-Jul-92	190	25	12.1	L 0.0100	0.22	1.4	5.4	3.1	0.54	0.27	1	3.6	0.3	0.96	0.02	0.33
21-Oct-92	190	35	13.6	L 0.0200	0.34	0.6	5	3.7	0.82	0.32	1.8	6.2	0.43	1.2	0.04	0.57
09-Aug-93	155	25	15.6	L 0.0200	0.25	2.4	5.7	3.7	0.57	0.29	1.7	4.4	0.39	0.88	0.02	0.34
13-Oct-93	155	34	18.8	0.03	0.3	2.5	5.7	4.7	0.86	0.35	2.4	6.6	0.47	1.23	0.02	0.41
12-Jun-94	110	25	12.6	L 0.0200	0.18	1.6	5.6	2.9	0.47	0.23	1.4	3.4	0.32	0.8	0.02	0.17
09-Oct-94	140	32	18.7	L 0.0200	0.18	0.9	5	3.3	0.67	0.26	1.8	4.1	0.36	1	0.03	0.34
19-Jun-95	170	22	16	L 0.0200	0.12	1	5.3	2.8	0.39	0.34	0.89	2.9	0.29	0.66	0.02	0.39
03-Nov-95	122	53.3	13.2	0.0211	0.11	0.5	4.9	6	1.09	0.26	2.22	11.2	0.55	1.41	0.05	0.38

27-Sep-96	165	31.9	18.3	L 0.0200	0.16	0.6	4.9	3.7	0.7	0.38	1.18	5.63	0.37	1.06	0.04	0.35
30-Jun-97	175	26.9	14.6	L 0.0200	0.13	1.96	5.6	3.19	0.5	0.25	1.45	4.35	0.42	0.86	0.02	0.32
16-Oct-97	160	42.7	16	L 0.0200	0.12	1.25	5.2	4.48	0.89	0.24	1.53	8.11	0.29	1.31	0.04	0.41
23-Jun-99	96	27.2	7.4	L 0.0200	0.11	2.53	6.15	3.48	0.49	0.259	1.54	3.98	0.39	0.81	0.014	0.406
29-Sep-99	201	34.9	21.8	0.05	0.23	1.3	5.23	3.71	0.78	0.4167	1.21	5.12	0.42	1.22	0.0389	0.518
17-May-00	75	24.7	8.1	L 0.0200	0.07	0.31	5.6	2.83	0.42	0.162	1.66	3.91	0.31	0.67	0.0162	0.208
11-Oct-00	160	37.9	14.7	0.03	0.18	2.57	5.93	4.77	0.89	0.265	2.02	6.67	0.49	1.37	0.0181	0.42

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:21:16

Deer Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Little Southwest Brook	NS01FD0026	46 45 55	60 37 40

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
470	6.0	1.72	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.10	0.79	0.18	0.0	0.0

GEOLOGY	PRECAMBRIAN IGNEOUS & ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND
FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE	BLACK SPRUCE FOREST WITH ABUNDANT BOGS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Deer Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	100	24	7.4	L 0.0100	0.14	0.3	5.1	2.6	0.32	0.18	1.6	3.6	0.22	0.69	0.02	0.11
30-May-91	95	22	6.1	L 0.0100	0.18	0.5	5.2	2.5	0.31	0.17	1.6	3.8	0.23	0.67	0.02	0.11
07-Jul-92	95	23	7.7	L 0.0100	0.19	2.9	6.1	2.5	0.48	0.28	1.2	3.2	0.28	1.2	0.05	0.24
21-Oct-92	60	35	8.3	0.05	0.3	3	6.3	3.5	0.84	0.27	2.2	5.7	0.43	1.7	0.05	0.37
09-Aug-93	75	26	11.2	L 0.0200	0.22	4.3	6.4	2.9	0.7	0.28	1.9	3.7	0.3	1.49	0.05	0.25
13-Oct-93	55	31	9.5	0.07	0.25	4.9	6.6	3.5	0.86	0.42	2.3	5.1	0.37	1.84	0.26	0.6
09-Oct-94	70	30	11.5	L 0.0200	0.16	2.4	5.8	3.1	0.67	0.28	2.1	4.1	0.32	1.4	0.05	0.31
19-Jun-95	85	25	11.5	L 0.0200	0.1	2.4	6.1	2.8	0.52	0.29	1.4	3.4	0.23	1.1	0.04	0.19
27 Sep-96	100	33.2	14.5	0.03	0.21	2.6	5.9	4	0.79	0.45	1.44	6.13	0.38	1.56	0.08	0.33
30-Jun-97	70	27.6	8.4	L 0.0200	0.21	3.11	6.3	2.98	0.57	0.23	1.61	4.17	0.37	1.17	0.03	0.18

16-Oct-97	80	41	12.8	0.04	0.15	2.83	6.1	4.21	0.9	0.3	1.71	7.42	0.27	1.95	0.09	0.38
27-Oct-98	105	39.7	13.7	L 0.0200	0.11	0.05	4.81	4.43	0.66	0.36	2.08	6.89	0.23	0.91	0.04	0.3
23-Jun-99	42	24.5	5.1	L 0.0200	0.14	2.68	6.25	2.7	0.48		1.54	3.35	0.29	1.02		
29-Sep-99	89	33.1	13.8	0.03	0.19	2.95	6.15	3.43	0.77	0.351	1.54	4.61	0.28	1.66	0.0589	0.381
17-May-00	36	28.1	6.1	0.03	0.09	2.08	6.35	3.05	0.61	0.17	1.82	4.32	0.24	1.19	0.0289	0.114
11-Oct-00	39	36.8	6.1	0.03	0.14	5.96	6.85	3.78	0.93	0.292	2.18	5.64	0.34	2.1	0.45	0.55

Indian Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Clyburn Brook	NS01FD0030	46 40 13	60 33 50

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
460	4.9	1.55	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.2	0.44	0.39	0.0	0.0

GEOLOGY	PRECAMBRIAN IGNEOUS & ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Indian Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	55	16	4.9	L 0.0100	0.1	0.5	5.6	1.8	0.23	0.12	1.1	2.2	0.17	0.39	0.01	0.15
29-May-91	50	17	3.1	L 0.0100	0.09	0.5	5.5	2.1	0.23	0.085	1.2	3	0.19	0.4	L 0.0100	0.07
07-Jul-92	75	16	5	L 0.0100	0.14	1	5.7	1.9	0.27	0.13	0.9	2.7	0.19	0.52	L 0.0100	0.16
21-Oct-92	105	20	6	L 0.0200	0.25	0.5	5.2	2.7	0.36	0.18	1.4	3.6	0.26	0.61	L 0.0100	0.23
04-Jun-93	85	14.7	5.9	L 0.0100	0.15	0.2	5.4	1.9	0.21	0.13	0.9	2.2	0.25	0.37	L 0.0100	0.13
21-Oct-93	95	22	11.7	L 0.0200	0.2	0.7	5.1	2.9	0.42	0.21	1.8	4.1	0.27	0.7	0.01	0.19
05-Jun-94	55	16.4	6.8	L 0.0200	0.15	0.1	5.4	1.8	0.23	0.12	1.1	2.4	0.21	0.42	0.01	0.1
09-Oct-94	80	24	10.9	L 0.0200	0.33	0.9	5.3	2.9	0.37	0.19	1.4	3.4	0.45	0.66	L 0.0100	0.16
12-Jun-95	55	18.3	7.6	L 0.0200	0.06	0.3	5.4	2.2	0.26	0.11	0.92	3.3	0.17	0.4	L 0.0100	0.1
03-Nov-95	84	32.8	8.6	L 0.0200	0.08	0.2	5.1	4	0.576	0.17	1.64	6.75	0.28	0.777	0.01	0.2

03-Jun-96	70	20.2	6	L 0.0200	0.07	0.5	5.5	2.4	0.27	0.14	1.05	3.18	0.2	0.51	L 0.0100	0.13
17-Jun-97	55	16.3	4.4	L 0.0200	0.05	0.56	5.6	2.05	0.22	0.094	0.92	2.92	0.22	0.37	L 0.0100	0.1
16-Oct-97	85	27.1	9.3	L 0.0200	0.09	0.98	5.4	3.03	0.45	0.19	1.25	4.66	0.12	0.76	0.01	0.2
21-Jun-98	55	16.9	5.5	L 0.0200	0.07	0.95	5.73	2.1	0.24	0.097	0.92	2.96	0.17	0.42	L 0.0100	0.1
25-Oct-98	85	25.5	9.8	L 0.0200	0.12	0.89	5.45	3.12	0.41	0.18	1.37	4.05	0.21	0.8	0.01	0.21
16-Jun-99	51	17.2	3.8	L 0.0200	0.14	1.24	5.9	2.15	0.21	0.088	0.91	2.74	0.31	0.43	0.00445	0.092
29-Sep-99	116	24.2	12.5	L 0.0200	0.15	0.82	5.3	2.63	0.37	0.175	1.02	3.29	0.24	0.59	0.0124	0.261
17-May-00	36	28.9	5.8	L 0.0200	L 0.0500	-1.55	4.53	2.38	0.27	0.0713	1.35	3.34	0.21	0.46	0.00704	0.082
11-Oct-00	81	23.9	7.3	L 0.0200	0.09	0.74	5.82	3.06	0.39	0.142	1.44	4.11	0.25	0.64	0.00549	0.18

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Round Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Halfway Brook	NS01FD0031	46 48 20	60 30 29

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
430	14.40	3.70	139680	42.30

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.6	0.55	0.35	2.0	0.97

GEOLOGY	PRECAMBRIAN IGNEOUS & ALTERED SEDIMENTARY ROCK
SOILS	ROUGH MOUNTAIN LAND
COVER	FIR, SPRUCE, BIRCH, BEECH, TAMARACK, SOME PINE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Round Lake Chemistry

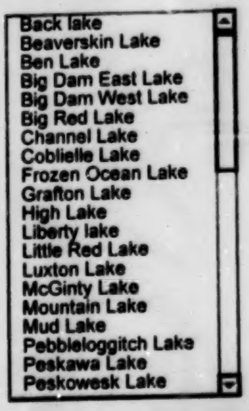
	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	90	22.9	7.1	L 0.0100	0.11	-0.1	5	2.6	0.31	0.19	1.7	4	0.16	0.44	0.02	0.22
17-Oct-90	90	34	7.6	0.07	0.25	0.8	5.3	3.7	0.57	0.34	2.4	5.3	0.29	0.75	0.04	0.37
30-May-91	85	20	4.9	L 0.0100	0.13	0.4	5.2	2.6	0.29	0.19	1.4	3.9	0.17	0.42	0.02	0.19
07-Jul-92	115	22	9.6	L 0.0100	0.15	0.1	5.1	2.7	0.33	0.26	1.1	3.6	0.21	0.45	0.03	0.24
21-Oct-92	135	34	10	L 0.0200	0.3	0.1	4.9	3.9	0.59	0.37	2.4	6.1	0.42	0.79	0.04	0.34
22-May-93	125	21.6	8	0.02	0.21	-0.2	4.9	2.4	0.3	0.27	1.2	3.3	0.24	0.43	0.02	0.25
03-Nov-93	125	34	13.5	0.02	0.2	-0.9	4.5	3.6	0.6	0.42	2.4	6.1	0.28	0.64	0.03	0.3
28-May-94	80	22	10	L 0.0200	0.16	-0.4	5	2.4	0.3	0.23	1.3	3.3	0.22	0.4	0.02	0.15
06-Nov-94	95	38	11	L 0.0200	0.13	-0.2	4.8	4.1	0.63	0.29	1.9	7	0.29	0.74	0.03	0.26
04-Jun-95	85	22	9.3	L 0.0200	0.15	0.3	5.2	2.6	0.27	0.26	1.1	3.8	0.25	0.31	0.02	0.23

19-Nov-95	86	52.8	11.3	L 0.0200	0.08	-0.5	4.7	6.2	0.885	0.32	2.42	10.7	0.37	0.875	0.04	0.22
01-Jun-96	90	25.7	9.1	L 0.0200	0.07	0.05	5	3.1	0.32	0.32	1.36	4.09	0.2	0.42	0.02	0.25
19-Oct-96	115	45.9	13.5	L 0.0200	0.09	-0.8	4.5	5	0.78	0.42	1.82	9.21	0.28	0.79	0.04	0.25
09-Jun-97	80	21	6.9	L 0.0200	0.06	-0.09	5	2.51	0.25	0.24	1.09	3.44	0.21	0.21	0.02	0.17
16-Oct-97	120	36.4	13.3	L 0.0200	0.16	0.46	5	4.21	0.58	0.36	1.69	6.39	0.21	0.86	0.03	0.34
23-Jun-98	80	23.5	8.3	L 0.0200	0.07	0.48	5.22	2.8	0.32	0.23	1.16	3.84	0.2	0.41	0.02	0.21
27-Oct-98	145	36.4	11.6	L 0.0200	0.1	0.25	4.95	4.38	0.62	0.29	2.01	6.37	0.22	0.84	0.03	0.24
12-Jun-99	73	23.3	5.6	L 0.0200	0.48	1.55	5.86	3.05	0.22	0.15	1.05	3.94	0.64	0.31	0.015	0.174
08-Oct-99	78	26.9	11.1	L 0.0200	0.1	0.88	5.22	2.74	0.46	0.213	2.25	3.9	0.25	1.05	0.0457	0.624
15-May-00	68	32.3	9	L 0.0200	0.06	-1.64	4.51	2.5	0.33	0.164	1.82	3.76	0.22	0.67	0.0378	0.228
19-Sep-00	137	26.2	13.5	L 0.0200	0.09	0.54	5.15	2.83	0.44	0.3	1.52	3.65	0.18	1.01	0.0621	0.59

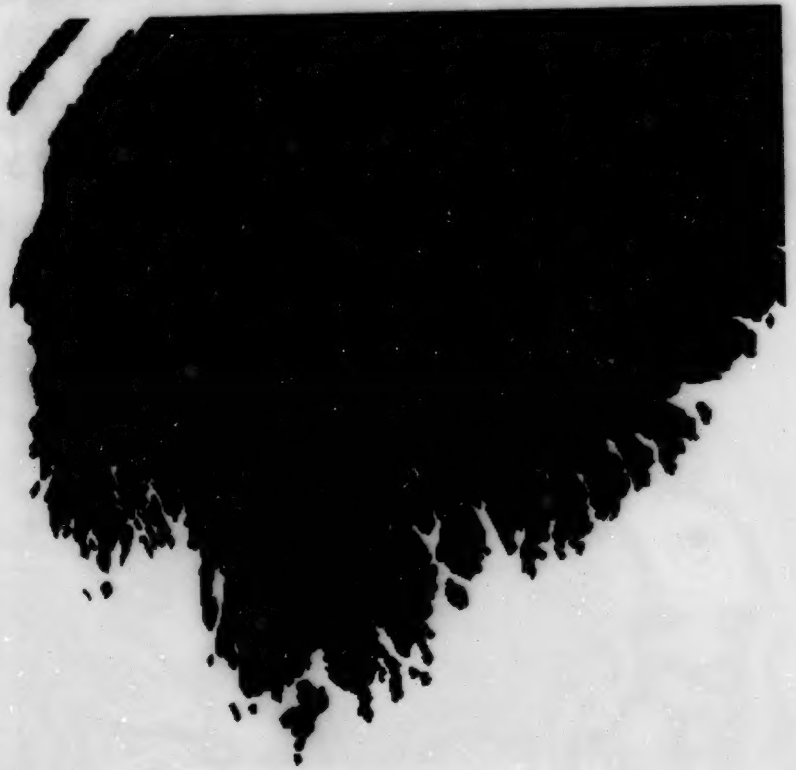
Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:12:18

Western Nova Scotia Map

Select Area :



Back lake
Beaverskin Lake
Ben Lake
Big Dam East Lake
Big Dam West Lake
Big Red Lake
Channel Lake
Coblielle Lake
Frozen Ocean Lake
Grafton Lake
High Lake
Liberty lake
Little Red Lake
Luxton Lake
McGinty Lake
Mountain Lake
Mud Lake
Pebbleloggitch Lake
Peskawa Lake
Peskowesk Lake



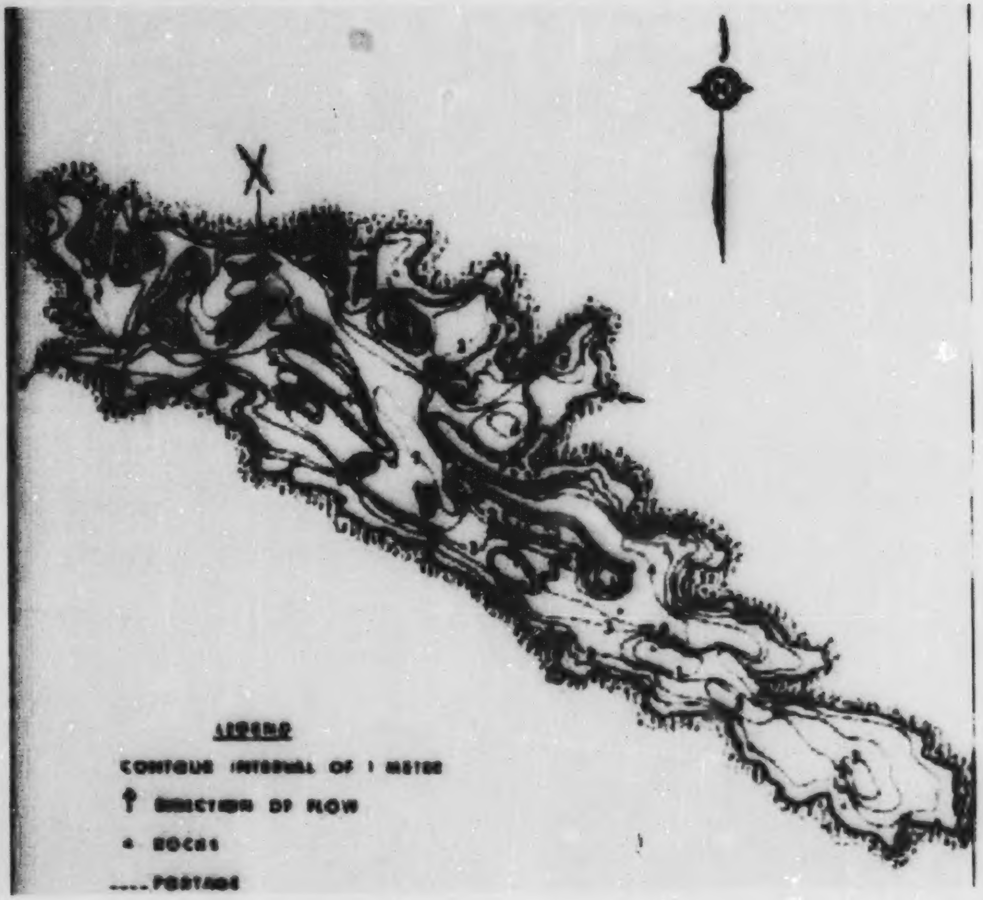
Back Lake

Drainage Basin	Station Number	Latitude	Longitude
Shelburne River	NS01ED0067	44 17 35	65 16 03

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
100	64.9	4.1	1706000	2.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
7.4	1.6	0.9	2.2	5.80

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX SANDY LOAM
COVER	SPRUCE, FIR, PINE, SOME MAPLE, OAK, BIRCH
FISH	PERCA FLAVESCENS, MERONE AMERICANA, FUNDULUS DIAPHANUS, CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS
PHYTOPLANKTON	DINOBRION BAVARICUM, GLOEOCAPSA PUNCTATA, ASTERIONELLA GRACILLIMA, GLOEOCYSTIS GIGAS
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA EURYPTERA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS


X
LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
ROCKS
PORTAGE

Back Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	15	23	3.7	L 0.0100	0.12	-0.2	5.3	2.3		0.1	2.1	3.8	0.2	0.7	0.02	0.05
18-Oct-83	L 5.0000	23	2.7	L 0.0100	0.11	0.3	5.5	2.6	0.35	0.05	2.4	4.1	0.2	0.5	0.02	0.046
03-May-84	25	23	3.9	0.01	0.08	0.3	5.3	2.4	0.31	0.086	2.2	3.8	0.2	0.61	0.02	0.06
17-Oct-84	10	23	2.5	L 0.0100	0.14	0	5.5	2.7	0.37	0.033	2.2	4	0.27	0.55	0.01	0.11
03-Jun-85	5	24	4.3	L 0.0100	0.1	0.2	5.3	2.4	0.31	0.09	2.5	4.2	0.2	0.55	0.03	0.07
23-Oct-85	L 5.0000	24	2.7	L 0.0100	0.11	0.1	5.5	2.6	0.37	0.038	2.5	4.3	0.24	0.49	0.021	0.032
28-May-86	20	23	3.8	L 0.0100	0.1	0.4	5.4	2.4	0.38	0.08	2.1	3.7	0.22	0.55	0.03	0.06
21-Oct-86	10	23	3.7	L 0.0100	0.1	0.3	5.4	2.5	0.38	0.069	2.4	4.1	0.29	0.49	0.01	0.07
20-May-87	20	23	6.8	L 0.0100	L 0.1000	0.3	5.3	2.5	0.37	0.096	2.3	4.1	0.22	0.51	0.03	0.07
08-Oct-87	L 5.0000	23	2.3	L 0.0100	L 0.1000	1.1	6.3	2.5	0.38	0.032	2.4	4.1	0.25	0.43	0.01	0.034

21-May-88	25	22	3.9	L 0.0100	L 0.1000	0.5	5.4	2.4	0.38	0.086	2.3	3.6	0.22	0.56	0.02	0.07
23-Nov-88	20	23	4.9	L 0.0100	0.1	0.4	5.2	2.7	0.4	0.089	2.9	3.8	0.28	0.52	0.02	0.09
24-May-89	20	21	3.2	L 0.0100	L 0.1000	0.2	5.3	2.3	0.35	0.087	2.7	3.6	0.22	0.52	0.04	0.06
24-Oct-89	5	22	2.5	L 0.0100	0.28	0.5	5.5	2.4	0.36	0.044	2.6	3.4	0.23	0.58	L 0.0100	0.041
05-Jun-90	10	21.8	3	0.01	0.11	0.3	5.3	2.4	0.33	0.087	2.2	3.1	0.24	0.53	0.03	0.06
30-Oct-90	5	23	2.6	L 0.0500	0.11	0.5	5.5	2.5	0.34	0.05	2.6	3.4	0.25	0.44	0.01	0.07
31-May-91	30	21	3.1	L 0.0100	0.12	0.2	5.4	2.3	0.34	0.1	2.2	3.4	0.31	0.46	0.05	0.09
22-Oct-91	15	24	3.7	L 0.0100	0.17	0.2	5.1	2.6	0.4	0.09	2.6	3.8	0.29	0.48	0.03	0.05
03-Jun-92	25	22	3.3	L 0.0100	0.12	0.5	5.4	2.4	0.53	0.095	2.2	3.9	0.29	0.41	0.03	0.06
22-Oct-92	L 5.0000	22	2.2	L 0.0200	0.13	0.1	5.5	2.3	0.34	0.038	2.7	3.7	0.25	0.45	0.02	0.046
19-Oct-93	L 5.0000	22	3.1	L 0.0200	0.1	0.1	5.6	2.7	0.35	0.037	2.3	3.7	0.28	0.44	0.02	0.032
28-May-94	30	21	4.9	L 0.0200	0.09	0.1	5.3	2.2	0.3	0.1	1.5	3.1	0.28	0.42	0.04	0.08
03-Nov-94	10	20	3.2	L 0.0200	0.09	0.5	5.4	2.4	0.33	0.046	2	3.6	0.26	0.47	0.02	0.041

24-May-95	25	22	3.9	L 0.0200	0.05	0.1	5.3	2.5	0.33	0.095	2.07	3.87	0.26	0.49	0.03	0.05
16-Oct-95	5	23	3.3	L 0.0200	0.05	0.3	5.4	2.7	0.314	0.038	2.12	3.77	0.28	0.469	0.01	0.042
03-Jun-96	65	21.2	3.6	L 0.0200	0.08	0.4	5.3	2.5	0.32	0.1	1.9	3.72	0.27	0.52	0.03	0.07
16-Oct-96	25	21.6	4.9	L 0.0200	0.1	0.3	5.2	2.5	0.32	0.1	1.77	3.43	0.29	0.42	0.02	0.08
27-May-97	30	19.8	4.2	L 0.0200	0.09	0.25	5.4	2.26	0.27	0.1	1.53	3.23	0.3	0.38	0.02	0.06
29-Oct-97	5	21.3	2.6	L 0.0200	0.07	0.26	5.5	2.27	0.3	0.041	1.99	3.52	0.28	0.4	0.01	0.04
09-May-98	30	20.5	4.1	L 0.0200	0.12	0.45	5.4	2.16	0.3	0.095	1.89	3.19	0.23	0.38	0.02	0.06
21-Oct-98	10	21.7	3.7	L 0.0200	0.05	0.07	5.29	2.31	0.31	0.069	2.21	3.31	0.27	0.46	0.02	0.04
26-May-99	21	20.9	4.1	L 0.0200	0.05	0.46	5.36	2.3	0.32	0.096	1.94	3.2	0.25	0.47	0.03	0.06
07-Oct-99	13	21.7	3	L 0.0200	0.1	0.54	5.52	2.44	0.34	0.0701	2.3	3.52	0.27	0.41	0.0309	0.064
16-May-00	33	23.3	4.7	0.02	0.09	-0.42	5.36	2.48	0.37	0.12	1.91	3.82	0.26	0.54	0.0261	0.058
18-Sep-00	10	22.5	2.8	L 0.0200	0.06	-0.03	5.59	2.7	0.35	0.0444	2.03	3.97	0.33	0.42	0.0185	L 0.0500

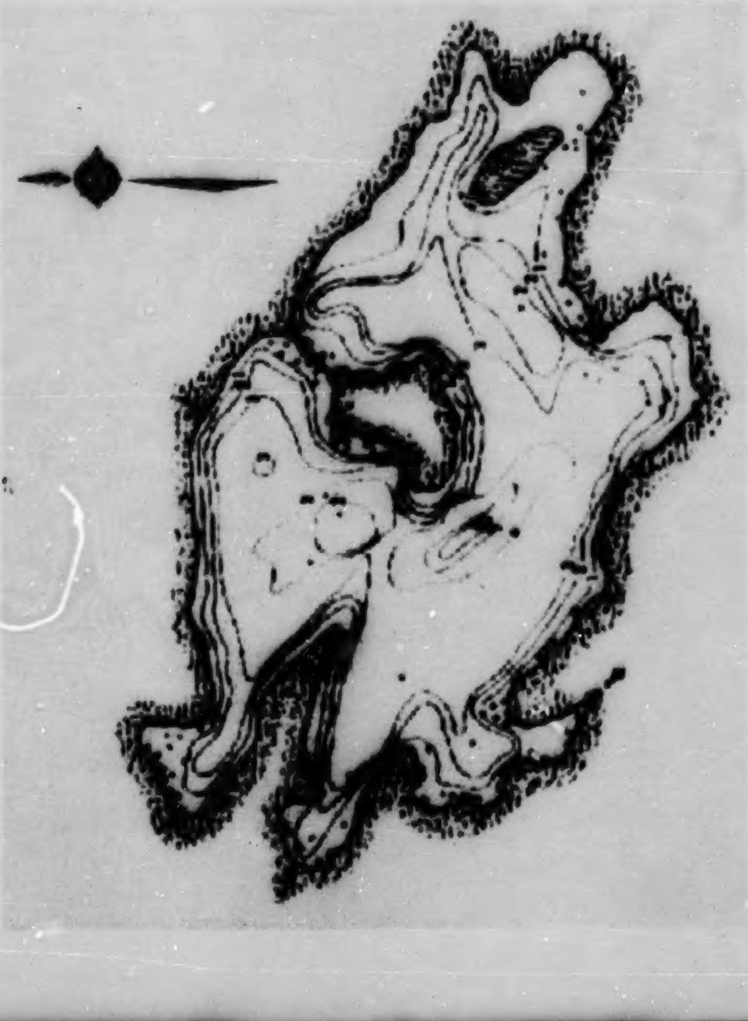
Beaverskin Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0101	44 18 28	65 19 58

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
120	39.5	1.00	864000	1.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	0.70	0.6	6.3	2.2

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	GIBRALTAR SANDY LOAMS
COVER	SPRUCE, FIR, PINE, HEMLOCK, MAPLE, OAK, BIRCH
FISH	PERCA FLAVESCENS, MERONE AMERICANA, FUNDULUS DIAPHANUS,NOTEMIGONUS CRYSOLEUCAS
PHYTOPLANKTON	ASTERIONELLA FORMOSA V. GRACILLIMA, CLOSTERIDIUM ACUTUM,ANHISTRODESMUS FALCATUS V. ACICULARIS
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA, DIAPTOMUS MINUTUS



Beaverskin Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	L 5.0000	23	2.5	L 0.0100	0.1	-0.1	5.4	2.5	0.34	0.053	1.7	4.1	0.2	0.35	0.02	0.021
18-Oct-83	L 5.0000	23	1.9	0.01	0.12	0.2	5.5	2.7	0.35	0.018	2.2	4.5	0.2	0.37	L 0.0100	0.014
03-May-84	5	22	2.3	L 0.0100	0.07	0.4	5.3	2.6	0.34	0.052	1.7	4	0.2	0.35	0.01	L 0.0100
17-Oct-84	L 5.0000	22	1.6	L 0.0100	0.1	0.1	5.7	2.5	0.33	L 0.0100	2.1	4.2	0.25	0.34	0.01	0.011
03-Jun-85	L 5.0000	23	2.3	L 0.0100	L 0.1000	0.1	5.4	2.7	0.38	0.01	2.2	4.2	0.26	0.3	0.01	0.02
03-Jun-85	L 5.0000	23	2.1	L 0.0100	L 0.1000	0.2	5.4	2.6	0.3	0.03	2	4.2	0.26	0.4	0.02	0.024
03-Jun-85	L 5.0000	23	2.2	L 0.0100	L 0.1000	0.1	5.4	2.6	0.35	0.01	2.2	4.3	0.26	0.2	0.01	0.02
23-Oct-85	L 5.0000	23	2	L 0.0100	L 0.1000	-0.1	5.6	2.6	0.36	L 0.0100	2.3	4.3	0.24	0.34	L 0.0100	0.011
27-May-86	L 5.0000	22	2	L 0.0100	0.11	0.4	5.6	2.4	0.35	0.03	1.7	4.5	0.21	0.38	0.01	0.012
21-Oct-86	L 5.0000	22	1.8	L 0.0100	L 0.1000	0.1	5.5	2.5	0.36	0.015	2.3	3.6	0.27	0.34	L 0.0100	0.021

21-May-87	L 5.0000	21	2.4	L 0.0100	L 0.1000	0.2	5.6	2.5	0.34	0.023	2.1	4.2	0.2	0.34	0.02	0.018
08-Oct-87	5	23	1.7	L 0.0100	L 0.1000	0.4	5.6	2.5	0.33	0.019	2.1	3.9	0.24	0.34	0.01	0.016
21-May-88	5	21	2.2	L 0.0100	L 0.1000	0.6	5.5	2.4	0.36	0.034	2	3.9	0.21	0.4	L 0.0100	0.014
23-Nov-88	5	22	1.8	L 0.0100	0.1	0.5	5.5	2.1	0.38	0.031	2.5	3.8	0.17	0.39	L 0.0100	0.017
24-May-89	5	21	2	0.01	L 0.1000	0.2	5.4	2.4	0.34	0.037	2.3	3.3	0.26	0.39	0.01	0.018
24-Oct-89	5	23	1.2	0.01	0.11	0.1	5.5	2.5	0.34	0.016	2.6	3.8	0.24	0.38	0.01	0.016
05-Jun-90	L 5.0000	21.4	1.3	L 0.0100	0.11	-0.2	5.3	2.5	0.32	0.037	2.2	3.2	0.19	0.35	0.01	0.016
30-Oct-90	L 5.0000	24	1.5	L 0.0100	0.11	0.5	5.4	2.5	0.34	0.023	2.6	3.6	0.22	0.31	0.01	0.013
31-May-91	10	21	1.4	L 0.0100	0.09	0.3	5.4	2.5	0.33	0.037	2.3	3.8	0.25	0.33	0.02	0.02
03-Jun-92	5	20	1.9	L 0.0100	0.08	0.4	5.6	2.5	0.39	0.037	1.7	4	0.24	0.45	0.02	0.011
22-Oct-92	L 5.0000	21	1.1	L 0.0100	0.1	-0.2	5.5	2.8	0.34	0.013	2.5	4.1	0.23	0.34	0.01	0.012
05-Jul-93	5	20.2	1.5	L 0.0100	0.11	0.1	5.4	2.5	0.29	0.037	2.1	3.5	0.21	0.34	0.01	0.021
19-Oct-93	L 5.0000	20	2.2	L 0.0200	0.09	1.7	5.5	2.7	0.36	0.016	2.3	3.8	0.24	0.31	0.01	0.01

02-Jun-94	10	20	2.8	L 0.0200	0.07	-0.4	5.3	2.3	0.3	0.049	2.1	3.6	0.22	0.3	0.02	0.019
03-Nov-94	10	20	2.4	L 0.0200	0.11	0.2	5.3	2.5	0.34	0.018	2.1	2.8	0.26	0.3	0.01	0.011
24-May-95	5	21	2.4	L 0.0200	0.06	-0.1	5.3	2.7	0.32	0.045	1.91	3.88	0.24	0.28	0.01	0.015
16-Oct-95	5	23	3.3	L 0.0200	0.06	0.1	5.4	2.9	0.326	0.017	2.18	3.96	0.27	0.321	0.02	0.015
03-Jun-96	40	24.6	2.4	L 0.0200	0.04	-0.6	5.1	2.6	0.33	0.048	1.99	3.96	0.21	0.36	0.01	0.01
06-Oct-96	5	22.6	2.2	L 0.0200	0.08	-0.02	5.2	2.6	0.32		1.87	3.66	0.2	0.32		
16-Oct-96	5	20.6	2.5	L 0.0200	0.08	0.1	5.2	2.6	0.3	0.041	2.01	3.62	0.22	0.26	L 0.0100	0.02
27-May-97	10	19.2	2.5	L 0.0200	0.06	0.18	5.4	2.38	0.26	0.044	1.48	3.41	0.2	0.27	L 0.0100	0.014
17-May-98	10	20	2.8	L 0.0200	0.08	0.46	5.5	2.31	0.28	0.036	1.8	3.28	0.15	0.29	L 0.0100	0.02
19-Oct-98	5	21.5	2.6	L 0.0200	0.04	0.01	5.25	2.29	0.31	0.031	2.04	3.35	0.19	0.3	0.01	0.019
26-May-99	11	19.4	3	L 0.0200	0.06	0.47	5.45	2.36	0.3	0.044	1.88	3.23	0.2	0.28	0.02	0.03
07-Oct-99	5	21	2.5	L 0.0200	0.07	0.46	5.49	2.53	0.31	0.0202	2.2	3.54	0.24	0.29	0.0138	L 0.0500
16-May-00	11	23.2	2.8	L 0.0200	0.08	-0.69	5.24	2.58	0.36	0.0537	1.98	3.83	0.19	0.39	0.00762	L 0.0500

18-Sep-00	L 5.0000	22.1	1.5	L 0.0200	0.03	-0.26	5.5	2.75	0.36	0.0107	2.2	4	0.25	0.27	0.0106	L 0.0500

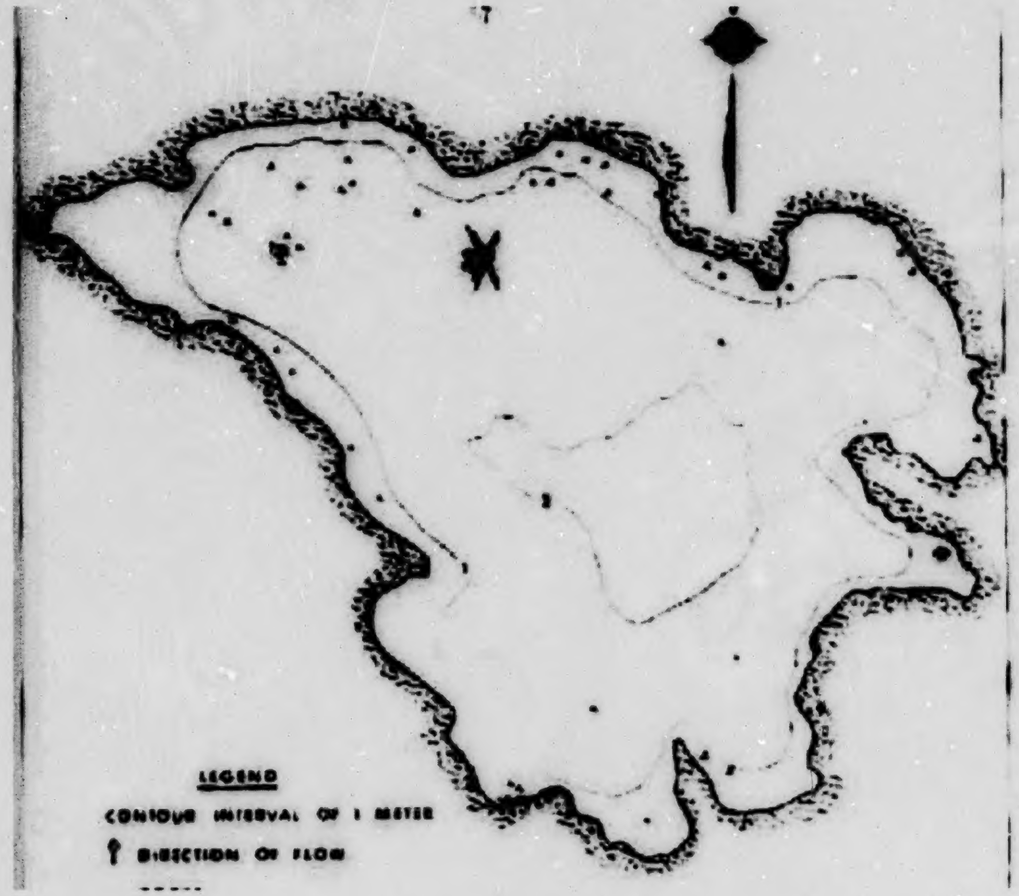
Ben Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0013	44 20 39	65 19 58

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
170	20.4	1.7	252000	5.70

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.10	0.74	0.50	0.74	0.50

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	GIBRALTAR SANDY LOAMS & PEAT
COVER	SPRUCE, FIR, PINE, HEMLOCK, SPHAGNUM
FISH	No Fish
PHYTOPLANKTON	ANACYSTIS INCERTA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA, CALANOID COPEPODS


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW

Ben Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	40	27	5.4	L 0.0100	0.11	-1	4.7	2.3		0.18	2.1	3.8	0.4	0.2	L 0.0100	0.12
18-Oct-83	5	27	3.1	L 0.0100	0.08	-1.2	4.7	2.5	0.3	0.1	2.7	3.7	0.1	0.19	L 0.0100	0.05
02-May-84	50	27	5.1	L 0.0100	0.06	-1	4.7	2.2	0.38	0.16	2.3	3.5	0.3	0.27	0.01	0.01
17-Oct-84										0.09					0.01	0.037
03-Jun-85	20	30	5.2	L 0.0100	L 0.1000	-1	4.6	2.6	0.3	0.16	3	4.3	0.4	0.3	0.01	0.11
22-Oct-85															L 0.0100	L 0.0020
27-May-86	35	28	5	L 0.0100	0.13	-0.9	4.7	2.4	0.3	0.16	2.4	4.1	0.33	0.28	L 0.0100	0.1
21-Oct-86	35	28	6.4	L 0.0100	0.11	-1	4.7	2.3	0.3	0.14	2.6	3.9	0.24	0.23	L 0.0100	0.13
21-May-87	40	27	4.3	L 0.0100	0.18	-0.9	4.8	2.4	0.29	0.19	2.2	4.1	0.3	0.23	0.01	0.16
08-Oct-87	5	31	3.7	L 0.0100	L 0.1000	-1.2	4.6	2.5	0.33	0.14	3.2	4	0.19	0.23	0.01	0.05

21-May-88	40	26	5.1	L 0.0100	L 0.1000	-0.5	4.7	2.2	0.3	0.17	2.1	3.7	0.28	0.26	L 0.0100	0.12
23-Nov-88	70	29	7.4	L 0.0100	0.14	-1.1	4.5	2.1	0.35	0.21	2.3	3.3	0.12	0.28	L 0.0100	0.13
24-May-89	40	25	3.5	0.01	L 0.1000	-1	4.7	2.3	0.26	0.12	2.1	3.2	0.47	0.24	L 0.0100	0.11
24-Oct-89	10	29	3.4	L 0.0100	0.27	-1.2	4.7	2.4	0.31	0.098	3.1	3.4	0.11	0.26	L 0.0100	0.043
05-Jun-90	40	27.6	4.8	0.02	0.11	-1.3	4.6	2.2	0.26	0.14	2.7	2.9	0.28	0.26	L 0.0100	0.07
30-Oct-90	15	29	3.4	L 0.0500	0.12	-0.5	4.7	2.4	0.28	0.1	2.8	3.4	0.17	0.17	L 0.0100	0.05
31-May-91	50	25	3.9	0.01	0.14	-1.1	4.7	2.3	0.26	0.16	2.4	3.3	0.35	0.2	0.01	0.09
15-Oct-91	35	33	6	L 0.0100	0.18	-1.2	4.5	2.5	0.32	0.2	3.2	3.8	0.2	0.24	L 0.0100	0.13
03-Jun-92	35	25	4.7	L 0.0100	0.09	-0.5	4.8	2.3	0.27	0.13	1.7	3.7	0.31	0.28	L 0.0100	0.06
22-Oct-92	L 5.0000	27	2.1	L 0.0200	0.12	-1.2	4.6	2.5	0.27	0.085	2.9	3.7	0.17	0.22	L 0.0100	0.031
05-Jul-93	30	25.9	3.7	L 0.0100	0.14	-1.1	4.6	2.2	0.25	0.14	2.2	3.3	0.26	0.22	L 0.0100	0.08
19-Oct-93	10	27	3.4	L 0.0200	0.18	-1.3	4.6	2.7	0.28	0.089	2.6	3.7	0.14	0.2	0.01	0.029
02-Jun-94	55	24	6	L 0.0200	0.1	-1.4	4.6	1.8	0.19	0.16	1.8	3	0.37	0.19	0.01	0.13
03-																

Nov-94	35	26	5.7	L 0.0200	0.08	-1.1	4.5	2.4	0.27	0.14	2.1	3.3	0.21	0.21	L 0.0100	0.07
25-May-95	35	29	4.9	L 0.0200	0.04	-1.2	4.7	2.6	0.28	0.14	1.9	4.1	0.41	0.24	L 0.0100	0.06
16-Oct-95	15	30	4.3	L 0.0200	0.06	-1	4.7	2.9	0.279	0.078	2.35	4.3	0.34	0.166	L 0.0100	0.039
03-Jun-96	25	25.6	4.3	L 0.0200	0.06	-1.3	4.6	2.4	0.25	0.16	1.95	3.64	0.34	0.22	L 0.0100	0.08
16-Oct-96	70	26.3	8.4	L 0.0200	0.13	-0.9	4.5	2.3	0.24		1.66	3.01	0.23	0.18	L 0.0100	0.17
27-May-97	50	22.6	5.2	L 0.0200	0.08	-1	4.7	1.98	0.18	0.137	1.46	2.93	0.37	0.18	L 0.0100	0.07
29-Oct-97	15	26.8	3.4	L 0.0200	0.09	-1.5	4.6	2.22	0.26	0.095	2.53	3.16	0.12	0.23	L 0.0100	0.04
05-May-98	50	23.2	6	L 0.0200	0.06	-0.67	4.68	1.8	0.21	0.17	1.87	2.61	0.26	0.18	L 0.0100	0.08
19-Oct-98	50	27.8	7.5	L 0.0200	0.07	-1.41	4.43	2.05	0.27	0.2	2.34	2.67	0.16	0.22	L 0.0100	0.08
26-May-99	34	24.8	5.7	L 0.0200	0.06	-0.62	4.65	2.15	0.25	0.15	2	3.1	0.37	0.21	L 0.0100	0.06
07-Oct-99	27	27.8	5.3	L 0.0200	0.09	-0.85	4.52	2.35	0.27	0.118	2.57	3.33	0.2	0.22	0.00562	0.052
16-May-00	43	29.6	6.2	L 0.0200	0.07	-1.51	4.58	2.56	0.32	0.165	2.01	4.13	0.32	0.29	0.00505	0.081
18-Sep-00	21	26.4	2.8	L 0.0200	0.03	-0.79	4.89	2.92	0.34	0.157	2.35	4.55	0.26	0.26	0.00944	0.08

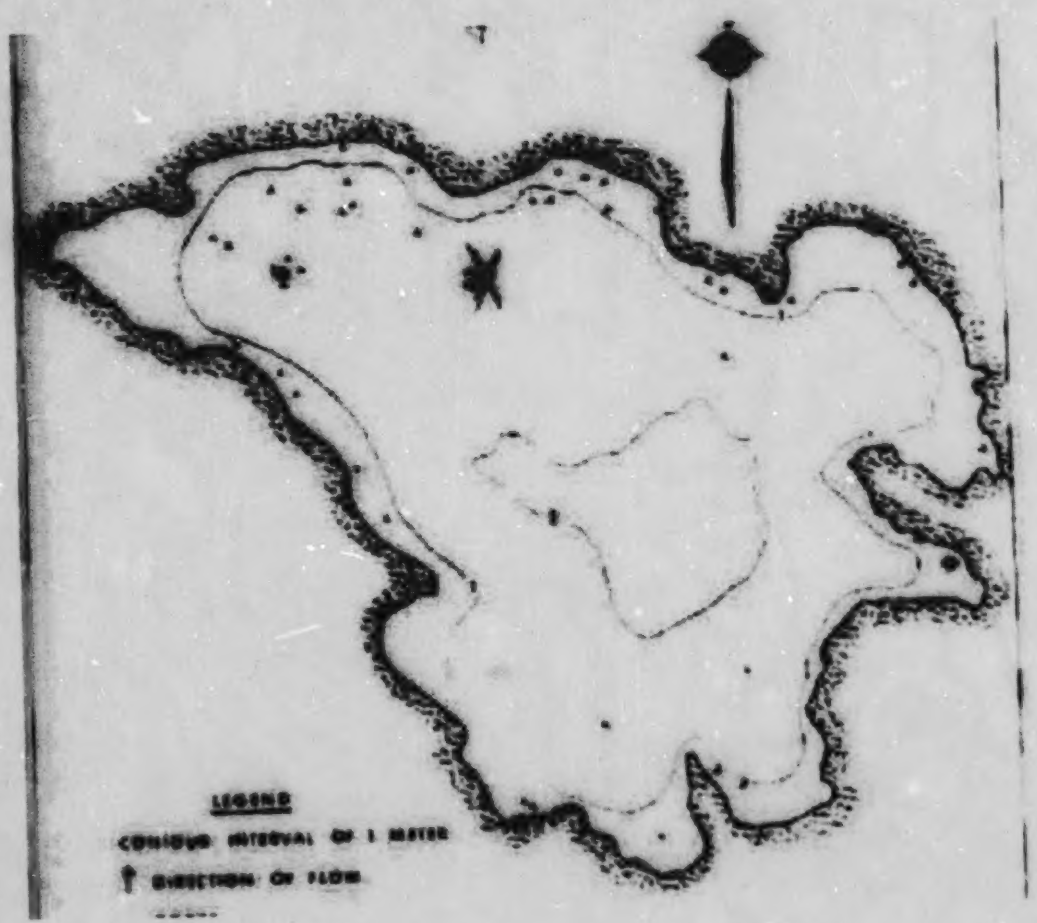
Big Dam West Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0070	44 27 33	65 17 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
120	105.4	40.0	2593000	131

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.5	1.70	1.0	9.5	2.5

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX & BRIDGEWATER SANDY LOAMS
COVER	PINE, SPRUCE, FIR, HEMLOCK, SOME MAPLE, OAK, BIRCH, BEECH
FISH	PERCA FLAVESCENS, MERONE AMERICANA, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS, SALVELINUS FONTINALIS, SALMO TRUTTA
PHYTOPLANKTON	SYNURA ADAMSII, ANACYSTIS INCERTA, GYMNODIUM FUSCAM, OOCYSTIS BORGEI, COELASTRUM MICROSPORUM
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, KELLICOTTIA BOSTONIENSIS, POLYARTHA EURYPTERA


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW

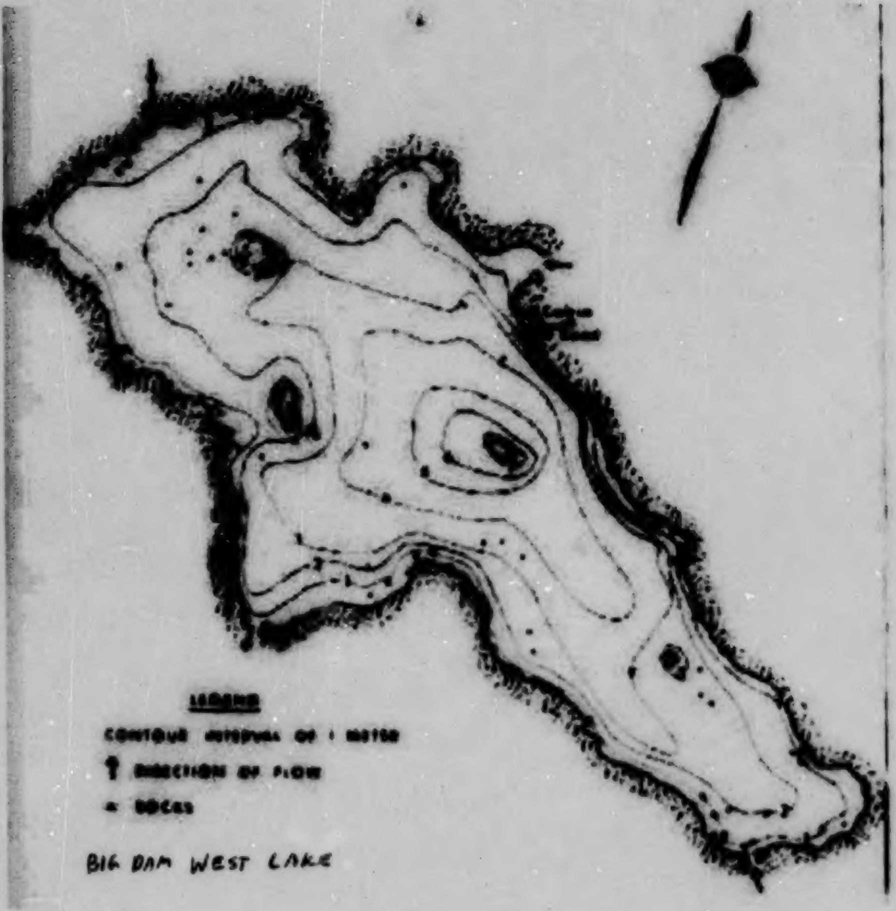
BIG DAM EAST LAKE

Big Dam East Lake

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	5	24	3.1	L 0.0100	0.06	0.6	5.9	2.7		0.15	2.1	4.3	0.2	0.75	0.02	0.03
18-Oct-83	L 5.0000	26	4	0.02	0.1	0.9	5.8	3	0.45	0.046	2.5	4.5	0.2	0.7	0.02	0.04
02-May-84	15	26	3.5	0.01	0.05	0.9	5.8	2.8	0.41	0.08	2.2	4.3	0.2	0.72	0.02	0.03
17-Oct-84	10	26	2.7	L 0.0100	L 0.1000	0.9	6	2.9	0.46	0.052	2.5	4.3	0.22	0.69	0.01	0.06
03-Jun-85	L 5.0000	26	3.2	L 0.0100	L 0.1000	0.8	5.8	2.9	0.4	0.09	2.6	4.8	0.15	0.65	0.01	0.024
12-Oct-85	L 5.0000	27	2.8	L 0.0100	L 0.1000	1	6.1	3.1	0.48	0.035	2.5	4.8	0.16	0.71	0.016	0.036
27-May-86	5	26	2.9	L 0.0100	0.1	1	6.1	2.7	0.46	0.075	2.17	4.8	0.16	0.71	0.01	0.023
21-Oct-86	10	26	4	0.01	L 0.1000	1	5.9	2.9	0.47	0.074	2	4.7	0.19	0.72	0.01	0.07
20-May-87	10	25	3.3	L 0.0100	L 0.1000	1	5.9	2.8	0.42	0.08	2.3	4.5	0.16	0.69	0.01	0.02
07-Oct-87	L 5.0000	26	2.3	L 0.0100	L 0.1000	1	6	1	0.46	0.038	2.5	4.7	0.24	0.68	0.01	0.036

21-May-88	10	24	2.9	L 0.0100	L 0.1000	1	6.1	2.7	0.44	0.077	2.3	4.1	0.16	0.71	0.01	0.019
23-Nov-88	20	28	4.3	L 0.0100	0.1	1.5	6	3.2	0.45	0.084	2.4	5	0.45	0.75	0.01	0.08
24-May-89	10	23	3.5	L 0.0100	L 0.1000	0.7	5.8	2.7	0.41	0.07	2.4	4	0.18	0.75	0.02	0.02
24-Oct-89	5	25	2.4	L 0.0100	0.26	0.8	6.1	2.9	0.39	0.035	2.5	4	0.21	0.75	L 0.0100	0.037
05-Jun-90	10	23.6	2.6	0.01	0.12	0.5	5.8	2.7	0.41	0.08	2	3.6	0.19	0.64	L 0.0100	0.031
30-Oct-90	5	26	2.6	L 0.0500	0.1	1.4	6.2	2.9	0.42	0.052	2.5	3.9	0.22	0.6	0.01	0.06
31-May-91	15	22	2.6	L 0.0100	0.09	1.1	5.9	2.7	0.39	0.037	2.3	4.1	0.23	0.48	L 0.0100	0.003
17-Oct-91	20	25	4.4	L 0.0100	0.19	1.3	5.8	3	0.45	0.09	2	5	0.24	0.69	0.01	0.06
03-Jun-92	15	22	2	L 0.0100	0.08	1	5.9	2.7	0.53	0.068	2	4.1	0.18	0.55	0.02	0.017
22-Oct-92	L 5.0000	24	2	L 0.0200	0.12	0.9	6.2	3.1	0.4	0.022	2.4	4.3	0.22	0.62	L 0.0100	0.023
05-Jul-93	5	23.2	2.4	L 0.0100	0.13	1.3	6	2.9	0.37	0.063	2.2	4.1	0.27	0.6	0.02	L 0.0500
19-Oct-93	5	23	3.6	L 0.0200	0.19	0.9	6	3.2	0.42	0.048	2.4	4.5	0.24	0.6	0.01	0.028
29-May-94	25	22	4.4	L 0.0200	0.07	0.5	5	2.6	0.36	0.091	1.8	3.6	0.19	0.56	0.02	0.032
03-																

Nov-94	10	22	3.4	L 0.0200	0.07	1.1	5.9	2.9	0.41	0.075	2	4.1	0.23	0.64	0.01	0.06
25-May-95	15	24	3.4	L 0.0200	0.04	0.6	5.9	2.9	0.39	0.08	1.9	4.2	0.21	0.62	0.01	0.022
16-Oct-95	10	26	3.7	L 0.0200	0.05	0.9	6	3.4	0.42	0.049	2.07	4.56	0.25	0.614	0.02	0.05
03-Jun-96	45	23.1	2.9	L 0.0200	0.04	0.7	5.8	3	0.39	0.076	1.95	4.08	0.19	0.66	L 0.0100	0.02
16-Oct-96	20	24	4.7	L 0.0200	0.11	1.3	5.9	3	0.38	0.099	1.78	4.04	0.21	0.66	L 0.0100	0.05
27-May-97	15	20.9	3.3	L 0.0200	0.07	0.94	6	2.46	0.32	0.095	1.53	3.57	0.17	0.48	L 0.0200	0.02
29-Oct-97	5	23.1	2.6	L 0.0200	0.07	1.1	6.1	2.73	0.38	0.031	1.83	4	0.22	0.56	0.01	0.04
14-Jun-98	10	22.3	3.8	L 0.0200	0.04	1.04	5.99	2.6	0.36	0.048	1.88	3.61	0.18	0.48	0.01	0.04
28-Oct-98	20	23.9	4.7	L 0.0200	0.06	1.11	6.03	2.81	0.4	0.11	2.02	3.85	0.21	0.64	0.02	0.06
26-May-99	19	21.3	3.7	L 0.0200	0.05	0.99	5.91	2.6	0.35	0.08	1.85	3.45	0.16	0.61	0.01	0.03
07-Oct-99	14	24.2	4.2	L 0.0200	0.08	1.15	5.83	3	0.41	0.093	2.11	4	0.21	0.58	0.0218	0.069
16-May-00	18	24.3	3.9	L 0.0200	0.06	0.31	6.05	2.85	0.43	0.0845	1.93	4.17	0.14	0.66	0.00652	L 0.0500
18-Sep-00	6	25.4	2.2	L 0.0200	0.04	0.78	6.13	3.18	0.44	0.0301	2.15	4.6	0.22	0.53	0.0102	L 0.0500


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
DOCKS

BIG DAM WEST LAKE

Big Dam West lake

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	90	27	8.7	L 0.0100	0.11	-0.3	5	2.8		0.21	1.7	4	0.2	0.75	0.01	0.17
18-Oct-83	100	28	9.7	L 0.0100	0.14	0.5	5.3	3.3	0.45	0.2	2	4.5	0.2	0.75	0.02	0.2
02-May-84	80	28	8.3	0.02	0.07	-0.2	4.8	2.9	0.37	0.12	2.1	4.2	0.2	0.62	0.02	0.09
17-Oct-84	140	31	14	L 0.0100	0.1	0.5	5.2	3.7	0.53	0.28	1.8	4.9	0.27	0.91	0.02	0.38
03-Jun-85	70	31	9	L 0.0100	L 0.1000	-0.3	4.9	3.1	0.4	0.2	2.2	4.9	0.24	0.65	0.01	0.16
22-Oct-85	80	30	9.4	L 0.0100	0.11	0.4	5.2	3.6	0.48	0.2	1.6	5.3	0.24	0.75	0.03	0.17
27-May-86	100	30	7.7	L 0.0100	0.17	-0.1	5	3	0.39	0.21	1.9	4.7	0.24	0.64	0.03	0.16
21-Oct-86	160	31	16	0.02	0.14	0.1	4.9	3.3	0.5	0.3	1.4	5	0.25	0.9	0.02	0.37
20-May-87	90	28	7.2	L 0.0100	L 0.1000	-0.1	5.1	3.1	0.36	0.18	2.1	4.8	0.26	0.57	0.02	0.17
07-Oct-87	75	35	9.2	L 0.0100	L 0.1000	0.2	5.1	3.6	0.58	0.22	3.7	5.1	0.31	0.89	0.02	0.2

21-May-88	80	28	7.2	L 0.0100	L 0.1000	0.2	5	3.1	0.38	0.24	2.2	4.5	0.25	0.64	0.02	0.13
23-Nov-88	140	32	15	L 0.0100	0.11	-0.2	4.7	3	0.5	0.25	2.1	4.4	0.3	0.89	0.02	0.23
24-May-89	90	28	6	L 0.0100	L 0.1000	0.1	5	3.3	0.36	0.17	2	4.4	0.48	0.61	0.02	0.14
24-Oct-89	110	35	9.9	L 0.0100	0.38	0.4	5	3.8	0.61	0.24	3.2	4.9	0.28	1	0.02	0.17
05-Jun-90	100	27.9	8.8	0.01	0.18	-0.4	4.9	3	0.36	0.16	1.9	3.7	0.21	0.63	0.01	0.13
30-Oct-90	130	34	14.2	L 0.0500	0.27	1	5.1	3.6	0.53	0.41	2.3	4.6	0.21	0.86	0.03	0.3
31-May-91	85	25	6.5	L 0.0100	0.16	0.4	5.1	3.1	0.32	0.17	2.1	4.2	0.39	0.52	0.02	0.12
17-Oct-91	100	30	12.2	L 0.0100	0.28	0.5	4.9	3.4	0.49	0.34	2	5	0.28	0.84	0.03	0.31
03-Jun-92	70	26	5	L 0.0100	0.12	-0.2	5.1	3.1	0.5	0.14	1.7	5.1	0.28	0.55	0.01	0.13
22-Oct-92	55	28	4.5	L 0.0200	0.17	0.1	5.4	3.8	0.36	0.14	2.5	5.2	0.34	0.62	0.03	0.1
05-Jul-93	90	28	9.9	L 0.0100	0.22	0.4	5	3.3	0.44	0.25	1.7	4.8	0.24	0.6	0.01	0.21
19-Oct-93	70	30	10.7	L 0.0200	0.29	0.2	5	4	0.5	0.22	2.9	5.3	0.27	0.8	0.02	0.17
26-May-94	70	26	9.5	L 0.0200	0.12	-0.1	4.9	2.9	0.28	0.17	1.6	3	0.27	0.49	0.02	0.1
03-																

Nov-94	95	31	12	L 0.0200	0.11	0.3	4.9	3.8	0.49	0.28	2	5	0.33	0.84	0.03	0.2
25-May-95	70	33	6.8	L 0.0200	0.05	-1	4.9	3.7	0.41	0.16	2	6	0.34	0.62	0.02	0.11
16-Oct-95	85	32	9.7	L 0.0200	0.08	0.5	5.3	4.2	0.385	0.2	2.19	5.6	0.35	0.705	0.02	0.17
03-Jun-96	45	28.7	8	L 0.0200	0.08	-0.3	4.9	3.6	0.33	0.19	1.86	4.74	0.31	0.58	0.01	0.12
16-Oct-96	160	30.8	18.2	L 0.0200	0.18	0.6	4.8	3.4	0.43	0.36	1.06	4.14	0.22	0.77	0.02	0.4
27-May-97	80	26.1	8	L 0.0200	0.09	-0.11	5	2.97	0.26	0.15	1.57	4.17	0.34	0.44	0.01	0.11
29-Oct-97	50	28.1	5.2	L 0.0200	0.09	0.32	5.3	3.38	0.31	0.13	1.98	5.01	0.36	0.51	0.01	0.12
10-May-98	80	29	9.2	L 0.0200	0.11	0.36	5	3.19	0.32	0.19	1.99	4.49	0.19	0.49	0.02	0.12
28-Oct-98	170	37.5	21.9	L 0.0200	0.14	-0.13	4.63	3.48	0.61	0.4	1.98	4.76	0.4	1.1	0.04	0.3
26-May-99	68	26.1	7	L 0.0200	0.06	0.07	5.04	3.18	0.32	0.16	1.92	4.26	0.28	0.57	0.02	0.12
07-Oct-99	142	35	19.8	L 0.0200	0.15	0.19	4.72	3.78	0.54	0.368	1.92	4.67	0.35	0.96	0.0323	0.356
16-May-00	78	34.3	8.9	L 0.0200	0.1	-0.77	4.88	3.9	0.4	0.181	1.81	5.98	0.2	0.65	0.0144	0.131
18-Sep-00	53	33.3	4.8	L 0.0200	0.06	-0.05	5.22	4.28	0.4	0.138	2.06	6.58	0.26	0.59	0.0172	0.14

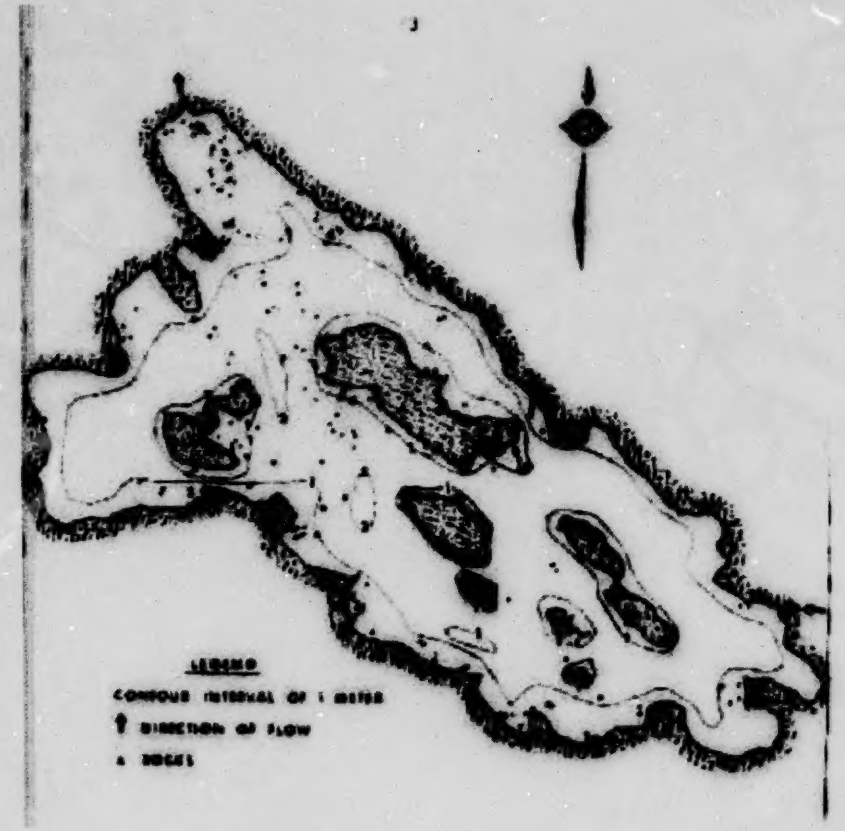
Big Red Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0080	44 20 58	65 22 58

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
160	70.5	8.0	704000	9.64

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.00	1.60	1.0	2.20	1.00

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	PEAT & GIBRALTAR SANDY LOAMS
COVER	SPRUCE, FIR, PINE, HEMLOCK, SPHAGNUM
FISH	PERCA FLAVESCENS
PHYTOPLANKTON	SYNURA UVELLA, OSCILLATORIA TENUIS, SURIRELLA OVALIS, ANHISTRODESMUS FALCATUS V. ACICULARIS
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA, CALANOID COPEPODS


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
ROCKS

Big Red Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	160	38	13	L 0.0100	0.15	-2.7	4.3	2.3	0.37	0.23	1.7	3.4	0.2	0.2	L 0.0100	0.15
18-Oct-83	200	37	35	0.01	0.14	-2	4.4	3	0.38	0.23	2.2	3.8	0.3	0.25	L 0.0100	0.19
02-May-84	120	35	13	L 0.0100	0.05	-2.5	4.1	2.3	0.26	0.15	2.1	3.1	0.2	0.21	0.01	0.1
17-Oct-84	240	42	21	0.01	0.17	-2.7	4.3	3.1	0.48	0.29	2	4.8	0.35	0.42	0.01	0.31
03-Jun-85	120	41	14	L 0.0100	L 0.1000	-3	4.2	2.7	0.35	0.2	2.4	3.8	0.3	0.3	0.01	0.14
22-Oct-85	200	41	23	0.02	L 0.1000	-2.7	4.3	3.1	0.44	0.24	2.6	4.5	0.31	0.32	0.014	0.24
27-May-86	160	37	12	L 0.0100	0.15	-2.5	4.4	2.4	0.29	0.18	1.8	3.5	0.22	0.27	L 0.0100	0.15
21-Oct-86	220	43	29	0.03	0.15	-3.3	4.3	2.8	0.46	0.32	1.6	4.4	0.36	0.39	0.01	0.37
21-May-87	140	36	11	L 0.0100	L 0.1000	-2.6	4.4	2.4	0.26	0.16	1.9	3.9	0.25	0.24	0.01	0.17
08-Oct-87	140	46	15	L 0.0100	0.1	-3.4	4.3	3.1	0.5	0.27	3.5	4.2	0.29	0.34	0.01	0.17

21-May-88	140	36	12	L 0.0100	L 0.1000	-2.4	4.3	2.3	0.29	0.17	2.1	3.3	0.19	0.25	L 0.0100	0.14
23-Nov-88	240	47	19	0.03	0.11	-3.8	4.1	2.7	0.53	0.3	2.1	3.6	0.21	0.41	L 0.0100	0.24
24-May-89	150	34	9	0.01	L 0.1000	-2.5	4.4	2.3	0.25	0.14	2.2	2.9	0.23	0.24	L 0.0100	0.12
24-Oct-89	180	42	14	L 0.0100	0.43	-2.6	4.3	2.9	0.45	0.24	3.2	3.8	0.18	0.38	0.01	0.13
05-Jun-90	160	37.1	11.2	0.02	0.19	-2.7	4.3	2.3	0.27	0.17	2.4	2.6	0.2	0.24	L 0.0100	0.13
30-Oct-90	190	41	15.6	L 0.0500	0.24	-2	4.4	2.9	0.44	0.3	2.3	3.7	0.28	0.33	L 0.0100	0.25
31-May-91	140	31	9.4	L 0.0100	0.2	-1.9	4.4	2.2	0.24	0.17	2.2	2.9	0.24	0.22	L 0.0100	0.13
15-Oct-91	200	46	22.4	L 0.0100	0.31	-3.3	4.2	3.1	0.51	0.35	2.2	4.3	0.38	0.42	0.01	0.31
03-Jun-92	65	25	5.4	L 0.0100	0.11	-0.5	4.8	2.4	0.3	0.26	1.8	3.8	0.27	0.28	0.01	0.13
22-Oct-92	105	33	8.4	L 0.0100	0.21	-2	4.4	2.8	0.33	0.16	2.6	4	0.27	0.27	L 0.0100	0.1
05-Jul-93	190	34.7	15.5	L 0.0100	0.25	-2.4	4.3	2.4	0.29	0.23	1.7	3.2	0.22	0.28	L 0.0100	0.17
19-Oct-93	115	36	15.7	L 0.0200	0.24	-2.1	4.3	3.1	0.39	0.22	2.6	3.8	0.31	0.27	0.01	0.15
02-Jun-94	135	32	15.3	L 0.0200	0.14	-2.9	4.3	2.1	0.19	0.19	1.7	2.7	0.32	0.19	L 0.0100	0.11
03-																

Nov-94	165	40	20.1	L 0.0200	0.14	-2.7	4.2	3.1	0.44	0.29	1.9	4	0.31	0.3	0.01	0.22
24-May-95	110	41	10.9	L 0.0200	0.08	-3.7	4.3	3	0.32	0.18	2.22	4.88	0.3	0.24	L 0.0100	0.1
16-Oct-95	130	41	13.3	L 0.0200	0.09	-1.9	4.4	3.4	0.366	0.2	2.4	4.73	0.39	0.278	0.01	0.16
03-Jun-96	50	35.4	14.1	L 0.0200	0.08	-2.6	4.2	2.6	0.25	0.21	1.89	3.39	0.23	0.25	L 0.0100	0.12
17-Oct-96	275	44.8	27.9	L 0.0200	0.2	-2.8	4.2	2.7	0.38		0.95	3.33	0.29	0.42		
27-May-97	125	29.3	11.2	L 0.0200	0.11	-1.8	4.4	2.04	0.16	0.117	1.53	2.51	0.38	0.12	L 0.0100	0.09
29-Oct-97	125	33.9	11.5	L 0.0200	0.16	-1.8	4.4	2.47	0.28	0.17	2.38	3.21	0.35	0.2	L 0.0100	0.13
05-May-98	135	30.9	13	L 0.0200	0.08	-1.57	4.37	1.94	0.21	0.19	1.8	2.41	0.2	0.15	L 0.0100	0.11
22-Oct-98	220	51.8	29.8	L 0.0200	0.15	-4.34	4.04	2.73	0.53	0.35	2.49	3.35	0.47	0.44	0.01	0.21
26-May-99	121	33.2	10.8	L 0.0200	0.08	-2.19	4.28	2.22	0.25	0.18	2.05	3.1	0.26	0.22	L 0.0100	0.09
07-Oct-99	188	47.9	24.7	L 0.0200	0.16	-3.45	4.14	3.04	0.48	0.316	2.33	3.79	0.31	0.32	0.00753	0.23
16-May-00	120	40.8	14.4	L 0.0200	0.12	-3.12	4.23	2.58	0.3	0.194	1.88	3.99	0.19	0.25	0.00433	0.115
18-Sep-00	113	39.2	10	L 0.0200	0.09	-2.33	4.32	2.94	0.36	0.173	2.41	4.62	0.29	0.21	0.00657	0.13

Channel Lake

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Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0086	44 25 00	65 18 33

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
100	68.4	128.0	779760	138.6

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.40	1.20	0.80	1.8	1.14

GEOLOGY	HALIFAX SLATE, SCHIST, MINOR QUARTZITE
SOILS	PEAT, BRIDGEWATER & HALIFAX SANDY LOAM
COVER	MAPLE, OAK, BIRCH, BEECH, SOME SPRUCE, PINE, HEMLOCK, SPHAGNUM
FISH	PERCA FLAVESCENS, MERONE AMERICANA, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI
PHYTOPLANKTON	TRIBONEMA MINUS, ARTHOSPIRA LAXA, GOMPHONEMA ACUMINATUM V. CORONATUM
ZOOPLANKTON	SYNCHAETA SP., KERATELLA TAUROCEPHALA, POLYARTHA REMATA

Channel Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	110	27	9.3	L 0.0100	0.11	-0.8	4.8	2.5	0.37	0.2	1.7	3.5	0.2	0.5	0.01	0.18
18-Oct-83	100	28	10.9	0.03	0.18	-0.1	5	3.1	0.45	0.19	2.3	4	0.2	0.64	0.02	0.22
02-May-84	100	27	9	L 0.0100	0.07	-0.8	4.6	2.6	0.35	0.16	1.9	3.6	0.2	0.48	0.02	0.12
17-Oct-84	140	31	14	0.01	0.11	0	4.9	3.2	0.47	0.28	2	4.5	0.25	0.76	0.02	0.3
03-Jun-85	100	30	10	L 0.0100	0.11	-0.9	4.7	3	0.4	0.2	2.2	4	0.26	0.55	0.01	0.17
22-Oct-85	120	31	10	L 0.0100	0.12	-0.1	5	3.3	0.46	0.2	2.2	4.6	0.2	0.68	0.02	0.24
27-May-86	110	29	9.8	L 0.0100	0.15	-0.5	4.8	2.7	0.35	0.23	1.8	4.1	0.23	0.54	0.02	0.19
21-Oct-86	160	31	19	0.03	0.13	-0.7	4.7	3	0.46	0.34	1.3	4.4	0.22	0.72	0.02	0.4
20-May-87	110	28	8.2	L 0.0100	L 0.1000	-0.7	4.8	2.6	0.32	0.16	1.9	4.2	0.24	0.47	0.02	0.19
07-Oct-87	100	37	12	L 0.0100	0.12	-0.9	4.7	3.3	0.59	0.25	4.2	4.1	0.32	0.78	0.02	0.21

21-May-88	100	27	6.9	L 0.0100	L 0.1000	-0.4	4.8	2.6	0.36	0.17	2	3.8	0.2	0.51	0.01	0.11
23-Nov-88	160	33	15	L 0.0100	0.11	-0.6	4.5	2.5	0.53	0.32	1.9	3.9	0.21	0.78	0.02	0.27
23-Nov-88	160	34	15	L 0.0100	0.11	-1.1	4.5	2.5	0.55	0.32	2.1	4	0.21	0.78	0.02	0.27
24-May-89	110	27	7	0.01	L 0.1000	-0.4	4.8	2.4	0.33	0.16	2.1	3.6	0.33	0.5	0.02	0.16
24-Oct-89	140	35	11	L 0.0100	0.28	-0.1	4.8	3.5	0.55	0.26	3.3	4.2	0.28	0.83	0.03	0.18
05-Jun-90	120	26.8	9.4	0.01	0.19	-1	4.7	2.3	0.29	0.15	1.9	2.8	0.19	0.46	0.01	0.14
30-Oct-90	130	32	14.2	0.04	0.23	0.4	4.9	3.1	0.47	0.26	2.4	3.9	0.23	0.67	0.02	0.29
31-May-91	110	23	7.5	L 0.0100	0.17	-0.1	4.8	2.5	0.28	0.17	1.9	3.3	0.33	0.43	0.01	0.15
17-Oct-91	120	30	15.4	0.01	0.32	-0.5	4.6	2.7	0.51	0.27	2	5	0.3	0.71	0.02	0.36
03-Jun-92	90	24	6	L 0.0100	0.11	-0.7	4.9	2.6	0.47	0.15	1.6	4.1	0.28	0.41	0.01	0.14
22-Oct-92	75	25	5.1	L 0.0200	0.21	-0.2	5.1	3.2	0.32	0.13	2.3	4.2	0.27	0.52	0.03	0.2
05-Jul-93	110	26.4	9.1	L 0.0100	0.26	-0.3	4.8	2.9	0.33	0.25	1.7	3.8	0.27	0.5	0.01	0.23
19-Oct-93	65	28	9.8	L 0.0200	0.3	-0.4	4.9	3.5	0.46	0.2	3.1	4.5	0.28	0.62	0.02	0.16

29-May-94	105	24	12.1	L 0.0200	0.12	-1.1	4.6	2.2	0.25	0.15	1.4	2.7	0.21	0.36	0.02	0.13
03-Nov-94	100	29	12	L 0.0200	0.12	-0.2	4.8	3.3	0.46	0.29	2	4.4	0.26	0.71	0.02	0.22
25-May-95	80	33	7.6	L 0.0200	0.06	-1	4.7	3.3	0.36	0.17	1.9	5.2	0.32	0.56	0.02	0.13
03-Jun-96	40	27	9.5	L 0.0200	0.07	-1	4.7	3	0.3	0.22	1.66	3.71	0.29	0.44	0.01	0.16
16-Oct-96	175	31.8	20.8	L 0.0200	0.17	-0.1	4.6	3.1	0.42	0.37	1.1	3.68	0.21	0.7	0.02	0.36
27-May-97	95	22.7	8.7	L 0.0200	0.09	-0.66	4.8	2.12	0.2	0.118	1.26	2.75	0.29	0.29	L 0.0100	0.11
29-Oct-97	65	27.1	6.4	L 0.0200	0.1	-0.2	5	2.86	0.32	0.12	2.16	4.07	0.31	0.45	0.02	0.14
25-Jun-98	110	27.5	11.3	L 0.0200	0.12	-0.11	4.88	2.78	0.34	0.21	1.95	3.3	0.24	0.47	0.02	0.25
02-Nov-98	185	37.4	23.6	L 0.0200	0.16	-0.85	4.44	2.99	0.56	0.43	1.94	3.74	0.37	0.81	0.03	0.33
26-May-99	82	25.6	8.3	L 0.0200	0.07	-0.38	4.72	2.59	0.28	0.16	1.83	3.31	0.24	0.44	0.01	0.14
07-Oct-99	148	37.4	21.1	L 0.0200	0.16	-0.71	4.49	3.54	0.55	0.342	2.28	4.32	0.31	0.74	0.0235	0.367
16-May-00	99	30.3	10.8	L 0.0200	0.09	-1.37	4.61	2.79	0.34	0.154	1.64	4.15	0.15	0.52	0.0102	0.148
18-Sep-00	62	31.1	5.7	L 0.0200	0.07	-0.67	4.85	3.55	0.38	0.124	2.22	5.33	0.23	0.47	0.016	0.12

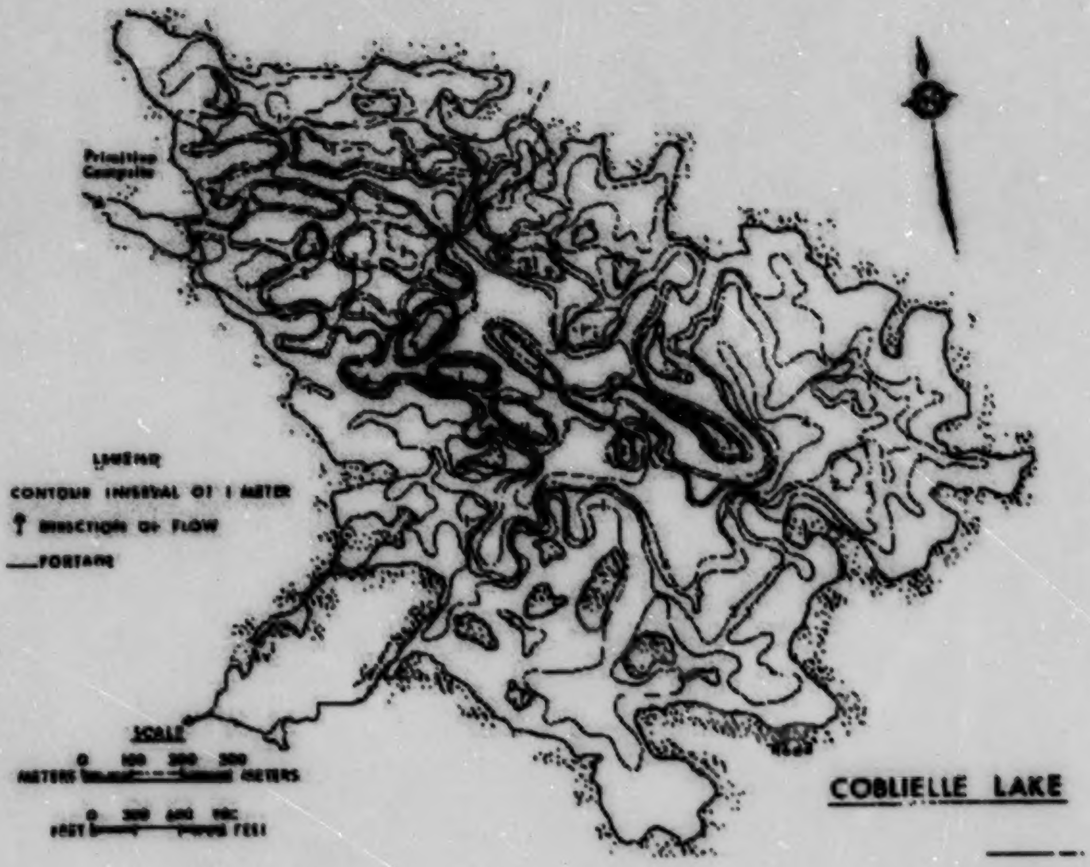
Cobielle Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0078	44 19 00	65 13 58

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
129	131.8	11.5	2595000	3.76

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
8.30	1.61	1.00	6.25	1.97

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX SANDY LOAM
COVER	MAPLE, OAK, BIRCH, BEECH, SOME PINE, SPRUCE, HEMLOCK, MARSH & GRASS
FISH	PERCA FLAVESCENS, MERONE AMERICANA, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, SALVELINUS FONTINALIS
PHYTOPLANKTON	APHANOTHECE CASTAGNII, TABELLARIA FENESTRATA, HYALOTHECA MUCOSA, PEDIASTRUM BORYANUM
ZOOPLANKTON	POLYARTHA EURYPTERA, BOSMINA LONGIROSTRIS, CALANOID COPEPODS


Primitive Campsite
LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
PORTAGE
SCALE
0 100 200 300
METERS METERS
0 300 600 900
FEET FEET
COBLIELLE LAKE

	COLOUR_AP REL UNITS	SP_COND USIE/CM	DOC MG/L	NO3/NO2 DI MG/L	N_TOT MG/L	ALK_GRAN MG/L	PH PH UNITS	NA_DIS MG/L	MG_DIS MG/L	AL_EXT MG/L	SO4_DIS MG/L	CL_DIS MG/L	K_DIS MG/L	CA_DIS MG/L	MN_EXT MG/L	FE_EXT MG/L
26-May-83	5	22	2.2	L 0.0100	0.09	-0.2	5.3	2.3	0.32	0.083	1.9	4.1	0.2	0.4	0.02	0.031
18-Oct-83	L 5.0000	22	2.5	L 0.0100	0.08	0.1	5.5	2.6	0.35	0.021	2.3	4	0.2	0.37	0.02	0.032
3-May-84	10	22	2.8	L 0.0100	0.08	0.2	5.2	2.6	0.31	0.086	2	4	0.1	0.37	0.03	0.03
17-Oct-84	L 5.0000	23	1.2	0.02	0.11	0	5.5	2.7	0.34	0.027	2.2	4.1	0.22	0.4	0.02	0.023
3-Jun-85	L 5.0000	23	2.5	L 0.0100	L 0.1000	0	5.3	2.6	0.35	0.07	2	4	0.2	0.5	0.02	0.05
23-Oct-85	L 5.0000	23	2	L 0.0100	L 0.1000	-0.1	5.5	2.6	0.36	0.02	2.4	4.1	0.16	0.4	0.023	0.032
28-May-86	5	23	2.7	L 0.0100	L 0.1000	0.2	5.4	2.2	0.35	0.086	1.93	3.8	0.17	0.4	0.03	0.036
21-Oct-86	L 5.0000	22	2.8	0.01	L 0.1000	-0.1	5.4	2.4	0.34	0.038	2.1	4.1	0.18	0.39	0.02	0.06
20-May-87	5	21	2.3	L 0.0100	L 0.1000	0.1	5.4	2.5	0.33	0.07	2.1	4.1	0.17	0.39	0.03	0.041
8-Oct-87	L 5.0000	23	1	L 0.0100	L 0.1000	0.1	5.5	2.5	0.34	0.015	2.3	4.1	0.21	0.35	0.02	0.039
21-May-88	5	21	2.9	L 0.0100	L 0.1000	0.5	5.4	2.4	0.34	0.077	1.9	3.5	0.19	0.38	0.02	0.05
23-Nov-88	5	21	4.2	L 0.0100	L 0.1000	0.3	5.3	2.2	0.37	0.054	2.2	3.4	0.18	0.41	0.02	0.06
24-May-89	10	21	2.5	0.01	L 0.1000	-0.1	5.3	2.2	0.31	0.077	2	3.3	0.2	0.38	0.02	0.06
24-Oct-89	L 5.0000	22	1.3	L 0.0100	0.23	-0.1	5.6	2.4	0.29	0.021	2.5	3.5	0.23	0.42	0.01	0.024
5-Jun-90	L 5.0000	20.9	1.9	L 0.0100	0.07	-0.1	5.3	2.4	0.31	0.07	2.1	3.1	0.16	0.37	0.02	0.038
30-Oct-90	L 5.0000	22	1.4	L 0.0500	0.1	0.5	5.5	2.5	0.31	0.033	2.6	3.6	0.26	0.33	0.02	0.044
31-May-91	10	20	2.2	L 0.0100	0.08	0.1	5.3	2.4	0.31	0.077	2.2	3.8	0.23	0.35	0.03	0.06
22-Oct-91	5	23	1.6	0.02	0.13	0.4	5.4	2.6	0.36	0.053	2	3.5	0.25	0.37	0.02	0.06
3-Jun-92	15	20	2.2	L 0.0100	0.09	-0.2	5.3	2.4	0.5	0.098	2	3.8	0.22	0.34	0.03	0.038
22-Oct-92	L 5.0000	21	1.7	L 0.0200	0.1	-0.1	5.4	2.6	0.3	0.08	2.3	3.5	0.26	0.5	0.02	0.08
5-Jul-93	5	20.3	2.1	L 0.0100	0.07	0.3	5.3	2.4	0.27	0.063	2.1	3.5	0.2	0.34	0.04	0.027
19-Oct-93	L 5.0000	19.6	1.7	0.02	0.15	0.1	5.5	2.6	0.32	0.021	2.2	3.7	0.24	0.32	0.02	0.035
29-May-94	15	20	3.8	L 0.0200	0.07	-0.3	5.2	2.2	0.28	0.11	1.5	3.2	0.23	0.31	0.04	0.05
4-Nov-94	L 5.0000	19	2.2	0.03	0.08	0.4	5.4	2.4	0.3	0.022	2	3.6	0.21	0.3	0.02	0.033
24-May-95	10	21	3.1	L 0.0200	0.05	-0.4	5.3	2.5	0.28	0.086	1.82	3.77	0.2	0.28	0.03	0.036
16-Oct-95	L 5.0000	21	2.4	0.02	0.08	0.3	5.5	2.6	0.309	0.03	2.03	3.79	0.23	0.291	0.02	0.043
3-Jun-96	45	20.4	2.2	L 0.0200	0.05	-0.1	5.3	2.6	0.3	0.082	1.93	3.75	0.2	0.36	0.03	0.03
16-Oct-96	120	31.4	13.5	L 0.0200	0.15	0.5	4.9	3.2	0.41	0.27	1.5	4.06	0.23	0.71	0.04	0.37
27-May-97	20	19.3	3.4	L 0.0200	0.06	0.06	5.3	2.26	0.25	0.11	1.43	3.23	0.19	0.25	0.02	0.05
29-Oct-97	L 5.0000	20.6	1.3	L 0.0200	0.07	0.02	5.6	2.4	0.28	0.024	2.05	3.52	0.19	0.34	0.01	0.04
22-Jun-98	10	20.8	4.4	L 0.0200	0.07	0.4	5.39	2.27	0.28	0.12	1.95	3.1	0.24	0.33	0.03	0.08
4-Nov-98	5	20.5	1.9	0.03	0.07	-0.02	5.34	2.25	0.3	0.048	2.19	3.13	0.19	0.36	0.02	0.03
26-May-99	13	20.4	3.3	L 0.0200	0.07	0.18	5.12	2.31	0.29	0.1	1.95	3.13	0.2	0.32	0.03	0.03

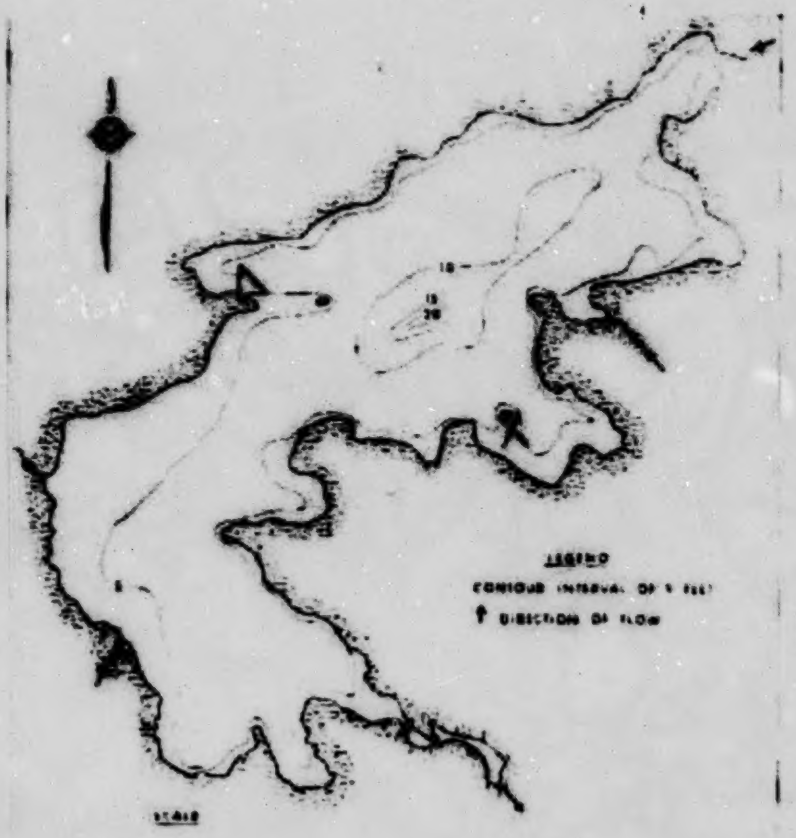
Frozen Ocean Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0085	44 27 07	65 20 43

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
105	228.0	116.0	4241000	23.2

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
13.30	3.20	1.60	7.60	1.90

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX SANDY LOAM, PEAT, ASPOTOGAN SANDY LOAM, NICTAUX, TORBROOK
COVER	MAPLE, OAK, BIRCH, BEECH, PINE, SPRUCE, HEMLOCK, FIR, BOGS, GRASSLANDS
FISH	PERCA FLAVESCENS, MERONE AMERICANA, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, SALVELINUS FONTINALIS
PHYTOPLANKTON	FRAGILLARIA CONSTRUENS, CYCLOTELLA KUETZINGIANA, HORMIDIUM KLEBSII, OOCYSTIS SUBMARINA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA REMATA, POLYARTHA VULGARIS


10
15
20
5
LEGEND
CONTOUR INTERVAL OF 5 FEET
↑ DIRECTION OF FLOW
SCALE

Frozen Ocean Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/
26-May-83	100	27	9.1	L 0.0100	0.1	-0.4	4.9	2.5	0.4	0.21	1.7	3.9	0.2	0.5	0.01	0.16
18-Oct-83	100	27	9.9	L 0.0100	0.15	0.2	5.2	3.1	0.45	0.2	2.2	4	0.2	0.64	0.02	0.21
02-May-84	80	27	8.7	0.01	0.06	-0.4	4.6	2.6	0.44	0.17	1.9	3.8	0.2	0.53	0.02	0.11
17-Oct-84	140	30	15	L 0.0100	0.14	0	4.9	3.3	0.51	0.27	2	4.6	0.25	0.76	0.02	0.3
03-Jun-85	80	30	9.4	L 0.0100	L 0.1000	-0.5	4.8	2.3	0.4	0.19	2.2	4.2	0.4	0.55	0.01	0.16
22-Oct-85	140	30	11	L 0.0100	0.13	0	5	3.4	0.47	0.3	2.1	4.8	0.2	0.65	0.019	0.24
27-May-86	100	29	7.4	L 0.0100	0.14	-0.7	4.9	2.8	0.37	0.23	1.9	4.3	0.24	0.56	0.03	0.17
21-Oct-86	160	30	17	0.03	0.14	-0.5	4.8	2.9	0.46	0.34	1.3	4.6	0.21	0.75	0.02	0.38
20-May-87	90	27	6.6	L 0.0100	L 0.1000	-0.5	4.8	2.7	0.33	0.17	1.8	3.9	0.24	0.5	0.02	0.17
07-Oct-87	80	33	9.7	L 0.0100	0.11	-0.5	4.8	3.2	0.52	0.25	3.6	4.6	0.3	0.7	0.02	0.17

21-May-88	90	27	7.3	L 0.0100	L 0.1000	0.1	4.9	2.7	0.36	0.17	1.9	3.9	0.22	0.52	0.01	0.14
23-Nov-88	160	32	15	L 0.0100	0.11	-0.3	4.7	2.7	0.58	0.32	2.1	4.3	0.24	0.87	0.02	0.29
24-May-89	100	27	6.7	0.01	L 0.1000	-0.5	4.9	2.8	0.33	0.15	2	3.6	0.33	0.52	0.01	0.16
24-Oct-89	120	32	9.7	L 0.0100	0.27	0.2	4.9	3.6	0.55	0.23	3.2	4.2	0.35	0.79	0.03	0.17
05-Jun-90	100	27.1	9.1	L 0.0100	0.19	-0.4	4.8	2.7	0.29	0.16	2	3.3	0.24	0.53	0.01	0.13
30-Oct-90	120	31	14	0.02	0.22	0.5	5.1	3.2	0.48	0.27	2.3	4	0.26	0.64	0.02	0.24
31-May-91	95	24	6.9	L 0.0100	0.17	0.2	4.9	2.6	0.3	0.17	2	3.4	0.35	0.44	0.01	0.15
17-Oct-91	115	31	14.2	L 0.0100	0.3	0.2	4.8	3	0.51	0.34	2	5	0.3	0.75	0.03	0.34
03-Jun-92	75	24	5.5	L 0.0100	0.13	-0.3	5	2.7	0.47	0.16	1.6	4.2	0.28	0.48	0.01	0.16
22-Oct-92	75	26	5.1	L 0.0200	0.17	0.1	5.1	3.4	0.36	0.16	2.5	4.3	0.31	0.51	0.03	0.15
05-Jul-93	90	26.3	8.4	L 0.0100	0.25	0.1	4.9	3.1	0.35	0.24	1.7	4	0.29	0.56	0.01	0.22
19-Oct-93	75	29	10.9	L 0.0200	0.3	-0.4	4.8	3.7	0.5	0.23	3	4.6	0.28	0.62	0.02	0.19
26-May-94	75	25	10.1	L 0.0200	0.12	-0.1	4.8	2.6	0.25	0.17	1.5	3.1	0.28	0.41	0.02	0.12

03-Nov-94	165	40	22.5	L 0.0200	0.18	-1.1	4.5	3.7	0.67	0.45	2.1	4.9	0.61	1	0.02	0.37
25-May-95	70	32	6.7	L 0.0200	0.07	-1	4.8	3.4	0.38	0.16	2	5.4	0.33	0.6	0.02	0.12
16-Oct-95	85	30	8.9	L 0.0200	0.08	0.1	5.1	3.8	0.358	0.18	2.19	5.02	0.34	0.533	0.02	0.2
03-Jun-96	40	27.3	8.1	L 0.0200	0.06	-0.7	4.7	3	0.31	0.21	1.76	3.97	0.28	0.51	0.01	0.14
16-Oct-96	170	31.6	19.7	L 0.0200	0.18	0.04	4.6	3.2	0.41	0.37	1.08	3.75	0.2	0.68	0.02	0.33
27-May-97	80	23.8	7.8	L 0.0200	0.09	-0.09	4.9	2.52	0.24	0.119	1.5	3.44	0.33	0.37	0.01	0.11
29-Oct-97	60	26.2	5	L 0.0200	0.1	-0.11	5.1	2.91	0.3	0.13	2.08	4.3	0.34	0.41	0.01	0.13
01-Jul-98	70	26.2	8.5	L 0.0200	0.12	0.18	5.17	2.85	0.32	0.21	1.99	3.74	0.28	0.51	0.02	0.2
06-Nov-98	165	35.4	19.7	L 0.0200	0.15	-0.32	4.6	3.08	0.57	0.42	1.98	4.15	0.35	0.92	0.03	0.3
26-May-99	73	24.6	7.4	L 0.0200	0.07	-0.07	4.91	2.68	0.3	0.17	1.89	3.57	0.25	0.47	0.01	0.15
07-Oct-99	120	33.9	17.6	L 0.0200	0.15	-0.06	4.68	3.58	0.52	0.327	2.21	4.44	0.33	0.76	0.0293	0.33
16-May-00	81	31.1	10	L 0.0200	0.09	-0.91	4.77	3.2	0.37	0.19	1.79	4.89	0.21	0.58	0.014	0.13
18-Sep-00	56	30.2	5.2	L 0.0200	0.06	-0.45	6.05	3.65	0.39	0.139	2.17	5.49	0.23	0.49	0.0185	0.15

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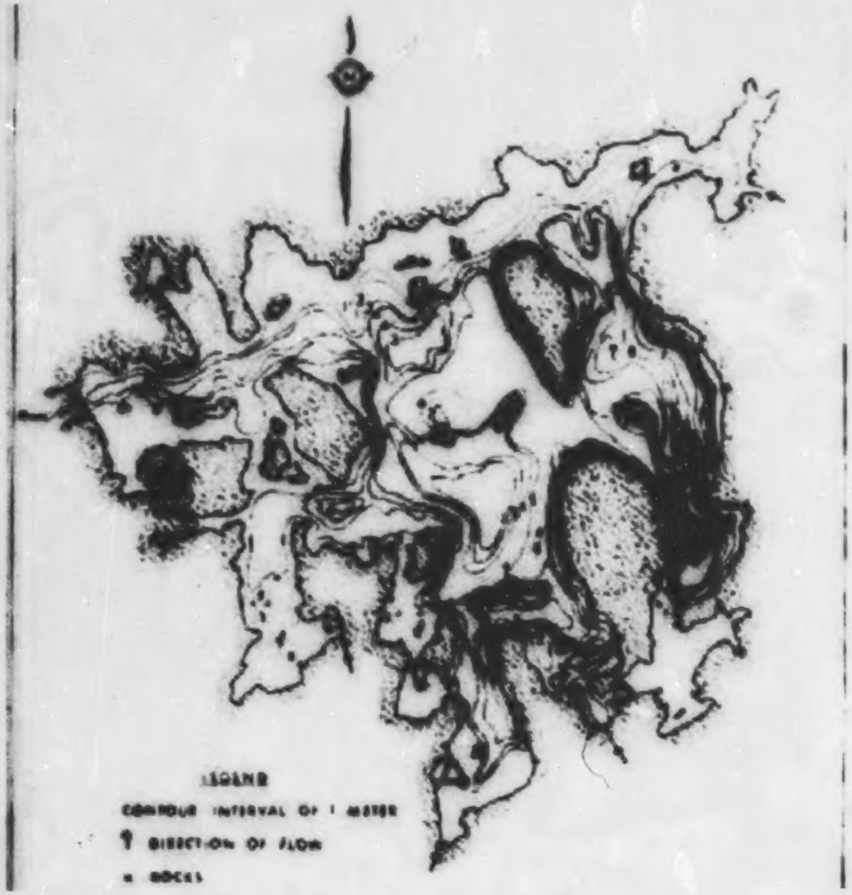
Grafton Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0076	44 23 08	65 10 39

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
100	270.4	53.0	7440000	6.04

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
20.0	1.67	1.6	10.0	2.76

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	BRIDGEWATER SANDY LOAM, PEAT
COVER	MAPLE, OAK, BIRCH, BEECH, SOME MARSH & GRASSLANDS
FISH	PERCA FLAVESCENS, MERONE AMERICANA, FUNDULUS DIAPHANUS, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS, SALVELINUS FONTINALIS
PHYTOPLANKTON	ANABAENA CIRCINALIS, ASTERIONELLA GRACILLIMA, DICTOSPHAERIUM PULCELLUM
ZOOPLANKTON	KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, KELLICOTTIA BOSTONIENSIS, POLYARTHA VULGARIS, CALANOID COPEPODS


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
x ROCKS

Grafton Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	30	30	4.4	0.01	0.16	0.9	5.9	3.3	0.48	0.083	2.1	5.4	0.2	0.9	0.07	0.2
18-Oct-83	15	30	4.3	0.02	0.14	1.4	5.8	3.5	0.55	0.032	2.2	5.5	0.2	0.95	0.06	0.21
03-May-84	40	29	4.4	0.01	0.06	0.9	5.7	3.2	0.46	0.083	2.4	5.3	0.2	0.83	0.06	0.17
17-Oct-84	30	29	4.9	L 0.0100	0.13	1.3	6.2	3.5	0.55	0.043	3.7	5	0.22	0.93	0.05	0.3
03-Jun-85	20	31	4.8	0.01	L 0.1000	1	5.8	3.4	0.55	0.09	2.6	5.8	0.15	0.9	0.1	0.19
23-Oct-85	10	31	4.5	L 0.0100	0.11	1.3	6.1	3.6	0.56	0.025	2.5	5.8	0.16	0.93	0.07	0.29
28-May-86	30	31	4.5	L 0.0100	0.13	1.1	5.8	3.4	0.5	0.06	2.43	5.8	0.2	0.9	0.1	0.15
21-Oct-86	45	32	7.2	0.04	0.15	1.4	6	3.6	0.56	0.07	2.6	6	0.19	0.98	0.06	0.42
20-May-87	35	29	4	L 0.0100	L 0.1000	0.9	5.6	3.5	0.46	0.071	2.4	5.7	0.19	0.81	0.08	0.2
07-Oct-87	10	31	3.1	L 0.0100	L 0.1000	1.3	6.1	3.5	0.5	0.027	2.1	6	0.23	0.82	0.08	0.2

21-May-88	35	32	4.5	L 0.0100	L 0.1000	1.6	5.9	3.8	0.53	0.072	2.7	5.9	0.27	0.96	0.09	0.2
23-Nov-88	60	31	7.1	L 0.0100	0.21	1.2	5.6	3.5	0.59	0.094	2.5	5.4	0.23	1	0.08	0.34
24-May-89	40	29	3.4	L 0.0100	L 0.1000	0.9	5.6	3.5	0.47	0.056	2.5	5.2	0.44	0.86	0.08	0.15
24-Oct-89	25	31	3.6	L 0.0100	0.33	1.4	6.1	3.7	0.46	0.032	2.4	5.4	0.23	0.92	0.07	0.2
05-Jun-90	30	29.7	3.7	0.01	0.14	1.1	5.7	3.5	0.45	0.06	2.2	5	0.2	0.86	0.1	0.17
30-Oct-90	20	32	4.4	0.055	0.19	1.6	6	3.8	0.49	0.043	2.5	5.3	0.2	0.78	0.05	0.28
31-May-91	35	27	3.5	0.01	0.12	1.1	5.7	3.5	0.43	0.064	2.5	5.2	0.24	0.75	0.11	0.13
17-Oct-91	15	30	4.3	0.01	0.23	1.8	6	3.7	0.52	0.058	2.5	7	0.24	0.77	0.05	0.27
03-Jun-92	35	29	2.4	L 0.0100	0.09	0.9	5.9	3.6	0.47	0.063	2.1	5.8	0.24	0.82	0.1	0.13
22-Oct-92	10	29	2.5	L 0.0200	0.17	0.9	6.1	3.8	0.46	0.03	2.5	5.7	0.24	0.73	0.04	0.17
05-Jul-93	30	31.8	3.8	L 0.0100	0.15	1.3	5.7	4.1	0.46	0.08	2.5	5.8	0.22	0.94	0.15	0.19
19-Oct-93	5	30	4.3	L 0.0200	0.22	1.1	6	4.4	0.51	0.031	2.4	6.8	0.22	0.78	0.05	0.17
28-May-94	35	27	5.9	L 0.0200	0.13	1	5.7	3.3	0.39	0.085	2.1	4.4	0.21	0.73	0.1	0.21
03-																

Nov-94	20	27	4.6	L 0.0200	0.09	1.4	6	3.7	0.46	0.049	2.2	5.3	0.21	0.81	0.05	0.18
24-May-95	35	31	4.2	L 0.0200	0.07	0.6	5.8	4.1	0.47	0.082	2.39	6.06	0.25	0.88	0.1	0.19
16-Oct-95	25	33	4.8	L 0.0200	0.09	1.4	6	4.3	0.533	0.045	2.32	6.15	0.27	0.832	0.1	0.24
03-Jun-96	60	30.2	4.9	L 0.0200	0.07	0.7	5.7	3.9	0.49	0.087	2.52	5.87	0.21	0.95	0.13	0.16
16-Oct-96	80	35.1	10.3	L 0.0200	0.19	1.5	5.7	3.9	0.53	0.15	1.75	5.31	0.2	1.15	0.15	0.49
27-May-97	40	28.1	5.1	L 0.0200	0.08	0.84	5.7	3.42	0.36	0.071	2.1	5	0.24	0.74	0.07	0.15
29-Oct-97	20	33.4	3.4	L 0.0200	0.12	1.1	6.1	3.93	0.49	0.046	2.78	5.86	0.23	0.94	0.1	0.33
05-May-98	55	33.3	7.3	L 0.0200	0.17	1.38	5.53	3.58	0.55	0.13	3.18	5.11	0.2	0.95	0.17	0.22
25-Oct-98	35	36.6	7.6	L 0.0200	0.1	1.11	5.74	4.07	0.6	0.11	3.04	6.12	0.23	1.1	0.12	0.32
26-May-99	31	29.6	5.1	L 0.0200	0.06	0.92	5.72	3.65	0.45	0.075	2.36	5.14	0.19	0.89	0.11	0.18
07-Oct-99	34	32.9	7	L 0.0200	0.12	1.56	5.91	3.91	0.59	0.0803	2.74	5.63	0.23	1.07	0.144	0.31
16-May-00	55	36	7.3	L 0.0200	0.07	0.42	5.34	4.15	0.52	0.096	2.11	6.74	0.17	0.99	0.0711	0.168
18-Sep-00	22	35.8	3.4	L 0.0200	0.06	0.83	6.11	4.7	0.55	0.0481	2.27	7.16	0.21	0.89	0.0949	0.24

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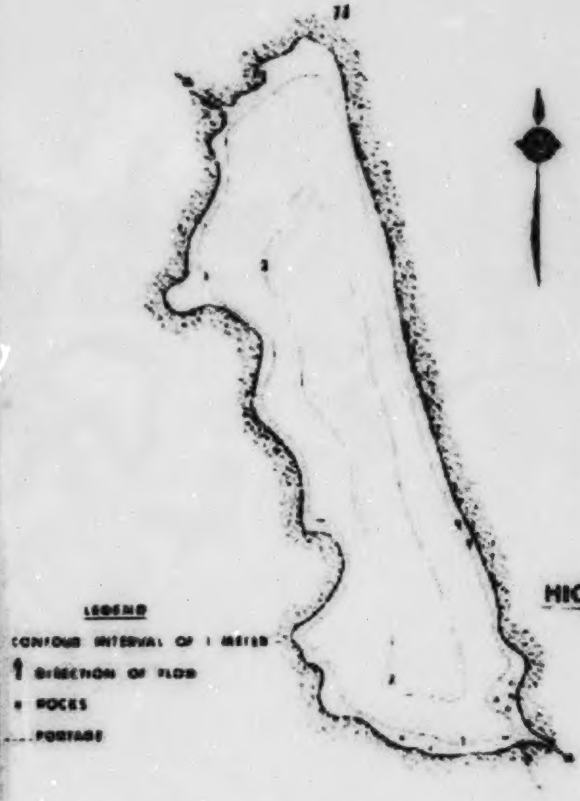
High Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0077	44 21 20	65 15 28

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
90	3.81	1.10	57000	16.35

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.00	0.60	0.10	2.80	1.50

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	ASPOTOGAN & BRIDGEWATER SANDY LOAMS
COVER	MAPLE, OAK, BEECH, BIRCH, SPRUCE, FIR, PINE, HEMLOCK
FISH	PERCA FLAVESCENS, FUNDULUS DIAPHANUS, CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS, SALVELINUS FONTINALIS
PHYTOPLANKTON	MERISMOPEDIA TENUISSIMA, CHROOCOCCUS DISPERSUS V. MINUS, ASTERIONELLA FORMOSA V. GRACILLIMA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA VULGARIS, HOLOPEDIUM GIBBERIUM, TROPOCYCLOPS PRASINUS V. MEXICANUS



LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
ROCKS
PORTAGE

HIGH LAKE

High Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	100	25	8.2	L 0.0100	0.12	-0.2	4.9	2.5		0.21	1.5	3.6	0.2	0.45	L 0.0100	0.14
03-May-84	80	25	8.3	L 0.0100	0.06	-0.2	4.8	2.6	0.32	0.16	1.6	3.8	0.2	0.47	0.02	0.1
17-Oct-84										0.21					0.01	0.18
03-Jun-85	80	28	9.6	L 0.0100	L 0.1000	-0.4	4.8	3	0.4	0.25	1.9	4.1	0.25	0.55	L 0.0100	0.13
03-Jun-85	80	28	9.6	L 0.0100	L 0.1000	-0.5	4.8	3	0.4	0.2	2	4	0.25	0.55	L 0.0100	0.13
23-Oct-85	120	28	11	L 0.0100	0.11	-0.1	5	3.1	0.42	0.21	1.8	4	0.2	0.47	0.013	0.19
28-May-86	90	25	9.5	L 0.0100	0.13	-0.1	4.9	2.4	0.33	0.21	1.5	3.9	0.19	0.51	L 0.0100	0.13
21-Oct-86	140	28	16	0.02	0.13	0.3	4.9	2.8	0.44	0.33	1.3	4	0.27	0.67	L 0.0100	0.3
20-May-87	90	23	7.2	L 0.0100	L 0.1000	0.1	5.1	2.6	0.33	0.18	1.4	4	0.21	0.49	0.01	0.19
08-Oct-87	55	28	7.3	L 0.0100	L 0.1000	-0.1	5.1	2.9	0.43	0.2	2.5	4.1	0.29	0.59	0.01	0.08

21-May-88	90	24	7.8	L 0.0100	L 0.1000	0.5	5.1	2.6	0.35	0.18	1.7	3.7	0.21	0.53	L 0.0100	0.14
23-Nov-88	150	30	15	L 0.0100	0.22	-0.1	4.7	2.6	0.5	0.32	3.6	3.8	0.25	0.69	0.01	0.22
24-May-89	90	22	4.6	0.01	L 0.1000	-0.1	5	2.5	0.31	0.16	1.7	3.6	0.27	0.44	L 0.0100	0.1
24-Oct-89	100	27	8.1	L 0.0100	0.37	0.1	5.1	2.9	0.46	0.21	2.4	3.6	0.27	0.66	0.01	0.11
05-Jun-90	90	24.6	7.6	0.02	0.14	-0.4	4.8	2.5	0.3	0.16	1.7	3	0.26	0.45	L 0.0100	0.1
30-Oct-90	90	28	10.5	L 0.0500	0.2	0.5	5	3	0.42	0.23	2.3	3.8	0.32	0.49	0.01	0.15
31-May-91	85	22	6.3	L 0.0100	0.15	0.1	4.9	2.4	0.26	0.17	1.6	3.2	0.3	0.38	0.01	0.1
03-Jun-92	75	21	5.5	L 0.0100	0.12	0.3	5.3	2.6	0.5	0.17	0.8	3.8	0.28	0.48	L 0.0100	0.15
22-Oct-92	45	23	4.7	L 0.0200	0.2	0.1	5.1	2.9	0.31	0.1	2	3.9	0.31	0.33	0.01	0.05
05-Jul-93	80	24.2	6	L 0.0100	0.18	0.2	4.9	2.6	0.33	0.23	1.7	3.7	0.28	0.45	L 0.0100	0.14
19-Oct-93	60	23	8.9	L 0.0200	0.25	0.3	5	3.1	0.37	0.17	1.9	3.9	0.32	0.42	0.01	0.1
03-Nov-94	90	25	11.9	L 0.0200	0.12	-0.2	4.8	3	0.39	0.25	1.7	3.7	0.33	0.55	0.01	0.14
25-May-95	70	27	6.8	L 0.0200	0.06	-0.2	4.9	2.9	0.33	0.19	1.75	4.56	0.28	0.49	L 0.0100	0.09
16-																

Oct-95	75	27	8.5	L 0.0200	0.09	0.3	5.1	3.3	0.381	0.19	1.89	4.18	0.33	0.421	0.01	0.1
03-Jun-96	45	23.1	14	L 0.0200	0.11	-0.3	4.7	2.5	0.31	0.14	0.84	3.22	0.11	0.54	0.07	0.33
16-Oct-96	175	28.7	19.7	L 0.0200	0.15	0.3	4.7	2.9	0.38	0.4	0.92	3.14	0.33	0.58	L 0.0100	0.26
21-Jun-98	70	22.7	8.1	L 0.0200	0.07	0.6	5.39	2.54	0.31	0.2	1.52	3.21	0.29	0.39	L 0.0100	0.1
31-Oct-98	120	30.2	17.3	L 0.0200	0.1	-0.08	4.72	2.96	0.48	0.34	1.95	3.36	0.32	0.62	0.01	0.17
26-May-99	68	21.3	7.6	L 0.0200	0.07	0.33	5.05	2.42	0.29	0.17	1.46	3.21	0.22	0.45	L 0.0100	0.08
07-Oct-99	95	28	14.5	L 0.0200	0.13	0.09	4.77	2.96	0.45	0.269	1.81	3.72	0.3	0.56	0.0103	0.17
16-May-00	83	26.6	10.3	L 0.0200	0.08	-0.72	4.89	2.74	0.34	0.202	1.41	3.94	0.22	0.52	0.00615	0.113
18-Sep-00	73	24.8	6.8	L 0.0200	0.06	-0.03	5.17	3.05	0.35	0.154	1.5	4.3	0.3	0.36	0.00751	0.1

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 11:55:35

Liberty Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0083	44 23 08	65 25 35

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
135	73.40	2.00	na	na

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.2	1.5	1.4	na	na

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	GIBRALTAR, ASPOTOGAN SANDY LOAMS & PEAT
COVER	MAPLE, OAK, BIRCH, BEECH FOREST, & PINE, SPRUCE, HEMLOCK
FISH	NOT SAMPLED
PHYTOPLANKTON	GLEOTRICHA NATANS, OSCILLATORIA AGANDHI, MERISMOPEDIA GLAUCA,TABELLARIA FENESTRATA, CHLOROCOCCUM LUMICOLA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, CALANOID COPEPODS

Liberty Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	40	25	4.2	L 0.0100	0.09	-0.2	5.2	2.6	0.37	0.17	1.9	4.1	0.2	0.4	0.02	0.1
18-Oct-83	10	23	3.5	0.01	0.08	0.1	5.5	2.9	0.35	0.082	2.3	4.1	0.2	0.37	L 0.0100	0.08
02-May-84	40	26	5.3	0.01	0.06	0.1	4.9	2.8	0.37	0.18	2.1	4.4	0.2	0.46	0.02	0.11
17-Oct-84	10	25	3.7	L 0.0100	0.11	0	5.5	3	0.41	0.1	2.5	4.6	0.25	0.45	0.01	0.1
03-Jun-85	15	28	5	0.01	L 0.1000	-0.1	5.2	3.1	0.5	0.18	2.6	4.7	0.26	0.5	0.02	0.08
22-Oct-85	5	27	2.9	L 0.0100	L 0.1000	0.2	5.4	3.1	0.44	0.077	2.6	5	0.24	0.42	0.013	0.088
27-May-86	25	26	4.7	L 0.0100	0.11	-0.2	5.2	2.8	0.42	0.18	2.34	4.8	0.23	0.46	0.04	0.09
21-Oct-86	25	26	4.9	0.01	0.11	0.4	5.3	2.9	0.41	0.17	2.4	4.7	0.23	0.42	0.02	0.18
20-May-87	35	25	4.2	L 0.0100	L 0.1000	-0.1	5.2	2.8	0.37	0.19	2.2	4.7	0.22	0.42	0.03	0.11
08-Oct-87	5	26	2.7	L 0.0100	L 0.1000	0.1	5.3	2.8	0.39	0.105	2.4	4.4	0.25	0.41	0.01	0.08

21-May-88	35	24	4.2	L 0.0100	L 0.1000	0.5	5.3	3.4	0.39	0.17	2	5.4	0.26	0.45	0.02	0.11
23-Nov-88	35	25	5.4	L 0.0100	L 0.1000	0.1	5.1	2.5	0.43	0.19	2.4	4	0.21	0.47	0.02	0.16
24-May-89	35	24	3.4	0.01	L 0.1000	0.2	5.3	2.7	0.37	0.14	2.2	3.7	0.25	0.44	0.02	0.13
24-Oct-89	10	25	2.5	L 0.0100	0.11	0.4	5.5	2.9	0.36	0.09	2.7	3.9	0.29	0.42	0.02	0.06
05-Jun-90	30	23.9	3.5	0.01	0.1	0.1	5.1	3	0.35	0.15	2.3	3.4	0.25	0.41	0.02	0.08
30-Oct-90	10	25	2.3	L 0.0500	0.11	0.5	5.4	2.8	0.35	0.11	2.7	3.8	0.25	0.32	0.01	0.12
15-Oct-91	45	23	5.6	0.01	0.21	0.4	5.2	2.8	0.36	0.21	2.5	4.2	0.36	0.36	0.03	0.16
03-Jun-92	35	21	3.5	L 0.0100	0.1	0.1	5.3	2.5	0.41	0.17	1.6	4.1	0.26	0.41	0.02	0.08
22-Oct-92	L 5.0000	21	1.7	L 0.0100	0.12	-0.1	5.7	2.8	0.32	0.062	2.3	4	0.26	0.35	0.02	0.095
05-Jul-93	20	22.3	3.1	L 0.0100	0.1	-0.1	5.2	2.7	0.31	0.15	2.1	3.8	0.24	0.39	0.02	0.06
19-Oct-93	5	21	3	L 0.0200	0.09	0.1	5.5	2.9	0.37	0.071	2.3	4.2	0.26	0.34	0.01	0.05
02-Jun-94	35	22	5.3	L 0.0200	0.07	-0.6	5.1	2.5	0.31	0.19	1.9	3.6	0.29	0.31	0.03	0.12
03-Nov-94	15	21	3.4	L 0.0200	0.07	-0.1	5.3	2.7	0.34	0.16	2	3.9	0.27	0.32	0.01	0.16
25-																

May-95	35	25	4.6	L 0.0200	0.05	-0.2	5.2	2.9	0.31	0.17	1.9	4.4	0.27	0.4	0.02	0.09
16-Oct-95	10	24	3.7	L 0.0200	0.04	-0.1	5.5	3.1	0.316	0.078	2.04	4.35	0.29	0.321	0.01	0.1
03-Jun-96	40	23.2	4.3	L 0.0200	0.06	-0.3	5.1	2.9	0.33	0.22	1.97	3.91	0.26	0.42	0.02	0.09
16-Oct-96	35	22.6	6	L 0.0200	0.12	0.2	5.2	2.8	0.32	0.23	1.73	3.65	0.21	0.35	0.02	0.16
27-May-97	45	21.3	5.1	L 0.0200	0.08	0.1	5.1	2.35	0.27	0.165	1.55	3.44	0.24	0.3	0.02	0.1
29-Oct-97	10	21.6	2.2	L 0.0200	0.07	0.12	5.5	2.47	0.3	0.065	1.85	3.75	0.26	0.28	0.01	0.11
05-May-98	40	21.8	5.7	L 0.0200	0.08	0.17	5.13	2.28	0.31	0.19	1.93	3.12	0.17	0.3	0.02	0.1
27-Oct-98	30	23.8	5.9	L 0.0200	0.09	0.05	5.16	2.58	0.35	0.18	2.24	3.39	0.27	0.41	0.02	0.15
26-May-99	28	21.7	4.7	L 0.0200	0.06	0.38	5.35	2.56	0.35	0.18	2	3.45	0.25	0.38	0.02	0.09
07-Oct-99	146	40.5	21.9	L 0.0200	0.17	-1.44	4.38	3.53	0.53	0.463	2.56	4.35	0.36	0.59	0.00839	0.312
16-May-00	38	30.3	6.5	L 0.0200	0.07	-1.01	4.72	2.92	0.4	0.212	1.92	4.36	0.24	0.48	0.0199	0.096
18-Sep-00	8	24.7	2.2	L 0.0200	0.03	-0.21	5.48	3.09	0.4	0.0845	2.22	4.7	0.24	0.37	0.0153	0.09

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:16:06

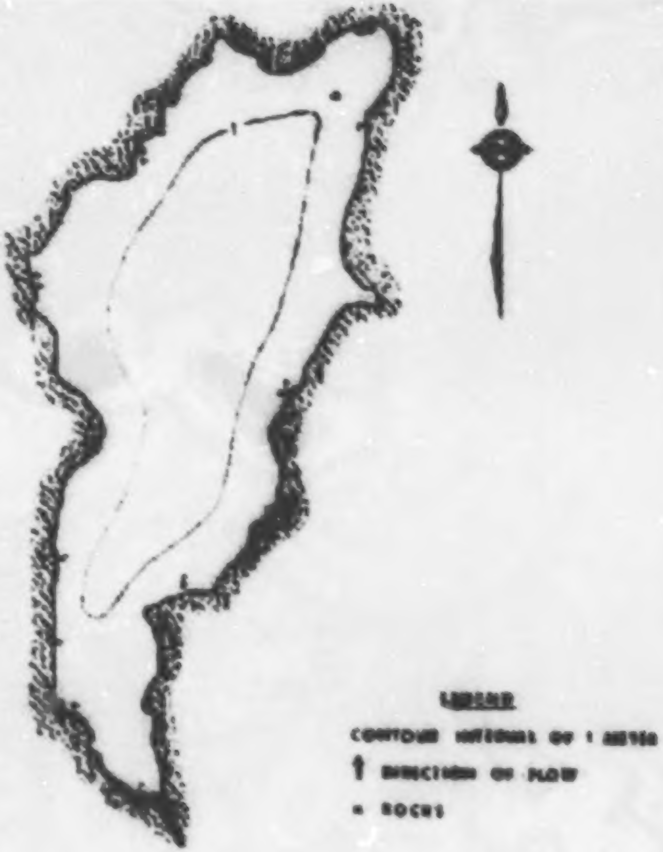
Little Red Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0087	44 22 20	65 23 43

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
150	19.6	3.80	140000	23.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.20	0.90	0.35	1.30	0.71

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	SANDY LOAMS & PEAT
COVER	MAPLE, OAK, BIRCH, BEECH, MARSHES & GRASSLANDS
FISH	PERCA FLAVESCENS
PHYTOPLANKTON	DINOBRION SERTULARIA, APHANOTHECE CASTAGNII, PEDIASTRUM TETRAS
ZOOPLANKTON	EUBOSMINA LONGISPINA, CALANOID COPEPODS


LEGEND
CONTOUR INTERVAL OF 1 METER
↑ DIRECTION OF FLOW
• ROCKS

Little Red Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	180	34	15	L 0.0100	0.15	-2.1	4.4	2.4	0.34	0.3	1.7	3.3	0.2	0.3	L 0.0100	0.16
18-Oct-83	120	41		0.1	0.28	-2.2	4.4	3.1	0.4	0.25	2.1	3.8	0.3	0.37	L 0.0100	0.19
02-May-84	120	32	14	L 0.0100	0.09	-2	4.2	2.4	0.32	0.21	2.1	3	0.2	0.27	0.01	0.09
17-Oct-84	160	37	21	0.01	0.11	-1.6	4.5	3.2	0.49	0.31	2	4.8	0.38	0.52	0.01	0.27
03-Jun-85	110	38	13	L 0.0100	L 0.1000	-2.4	4.4	3	0.3	0.28	2.2	3.7	0.26	0.3	L 0.0100	0.14
22-Oct-85	200	36	22	L 0.0100	0.12	-1.8	4.5	3.2	0.46	0.25	2	4.4	0.24	0.41	L 0.0100	0.19
27-May-86	140	34	13	L 0.0100	0.16	-2	4.4	2.6	0.34	0.24	1.9	3.9	0.21	0.27	0.01	0.15
21-Oct-86	180	38	19	0.03	0.14	-2.1	4.4	2.9	0.48	0.32	1.3	4.3	0.31	0.45	0.01	0.29
21-May-87	140	33	11	L 0.0100	L 0.1000	-2.1	4.4	2.4	0.28	0.22	1.9	3.7	0.21	0.25	0.01	0.14
08-Oct-87	160	48	24	L 0.0100	0.11	-3.1	4.3	3.2	0.55	0.36	3.6	3.9	0.45	0.46	0.01	0.21

21-May-88	140	33	9.5	L 0.0100	L 0.1000	-1.5	4.4	2.4	0.32	0.21	2	3.3	0.19	0.3	L 0.0100	0.1
23-Nov-88	200	41	19	0.03	0.15	-2.8	4.2	2.4	0.47	0.37	1.9	3.6	0.24	0.45	L 0.0100	0.24
24-May-89	140	32	9.3	0.01	L 0.1000	-1.5	4.5	2.3	0.3	0.18	2.1	2.8	0.34	0.27	L 0.0100	0.13
24-Oct-89	180	40	14	L 0.0100	0.31	-1.9	4.4	3.2	0.52	0.24	2.6	4.1	0.34	0.5	0.1	0.16
05-Jun-90	160	33.3	11.2	0.02	0.21	-2.4	4.4	2.3	0.27	0.22	2	2.5	0.2	0.29	L 0.0100	0.11
30-Oct-90	190	41	17.6	L 0.0500	0.26	-1.8	4.4	3	0.48	0.34	2	3.9	0.4	0.4	L 0.0100	0.24
31-May-91	140	27	9.7	L 0.0100	0.21	-1.1	4.5	2.2	0.26	0.22	2	2.8	0.25	0.24	L 0.0100	0.14
15-Oct-91	190	42	20.8	L 0.0100	0.34	-2.1	4.3	3.1	0.49	0.4	1.8	4.2	0.54	0.45	L 0.0100	0.32
03-Jun-92	105	29	7.8	L 0.0100	0.14	-1.6	4.5	2.4	0.41	0.17	1.6	3.7	0.2	0.41	0.01	0.13
22-Oct-92	100	30	8.9	L 0.0100	0.22	-1.5	4.5	2.9	0.34	0.17	2	4	0.23	0.31	0.03	0.12
05-Jul-93	160	31.2	12.3	L 0.0100	0.29	-1.3	4.4	2.7	0.29	0.27	1.6	3.2	0.21	0.22	L 0.0100	0.19
19-Oct-93	90	35	14.8	L 0.0200	0.24	-1.6	4.4	3.2	0.45	0.21	2.7	3.9	0.31	0.34	0.01	0.14
02-Jun-94	125	29	15	L 0.0200	0.16	-1.9	4.4	2.2	0.23	0.23	1.7	2.8	0.27	0.23	L 0.0100	0.12

03-Nov-94	135	38	19.5	L 0.0200	0.15	-1.3	4.3	3.2	0.47	0.33	1.6	4.4	0.3	0.37	0.01	0.21
24-May-95	100	40	9.6	L 0.0200	0.07	-3.5	4.3	3.2	0.33	0.23	2.07	5	0.29	0.24	L 0.0100	0.11
16-Oct-95	120	39	13.3	L 0.0200	0.1	-1.6	4.4	3.5	0.407	0.22	2.3	4.68	0.33	0.342	L 0.0100	0.15
03-Jun-96	160	32.3	14.5	L 0.0200	0.09	-2.2	4.3	2.8	0.29	0.28	1.79	3.37	0.2	0.3	L 0.0100	0.14
16-Oct-96	225	38.5	26.2	L 0.0200	0.16	-1.7	4.2	2.8	0.4	0.44	1	3.32	0.26	0.34	L 0.0100	0.27
05-May-98	135	28.7	13.2	L 0.0200	0.09	-1.25	4.5	2.05	0.24	0.24	1.77	2.44	0.17	0.22	L 0.0100	0.1
23-Oct-98	215	50.2	30.2	L 0.0200	0.17	-3.61	4.11	2.92	0.54	0.51	2.36	3.47	0.61	0.47	L 0.0100	0.24
26-May-99	120	32.2	11.8	L 0.0200	0.1	-1.68	4.36	2.44	0.28	0.21	1.91	3.17	0.24	0.19	L 0.0100	0.1
07-Oct-99	194	46.7	27.6	L 0.0200	0.18	-3.19	4.19	3.28	0.54	0.462	2.08	4.05	0.31	0.44	0.0063	0.265
16-May-00	120	38.3	14.1	L 0.0200	0.09	-2.37	4.32	2.74	0.33	0.245	1.77	4.05	0.18	0.28	0.00401	0.116
18-Sep-00	92	37.3	9.9	L 0.0200	0.08	-1.86	4.4	3.15	0.37	0.159	2.14	4.72	0.25	0.22	0.00517	0.11

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:13:08

Luxton Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0091	44 22 00	65 20 34

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
135	47.1	4.7	1420000	2.8

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.1	1.1	8.5	3.0

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	PEAT, GIBRALTAR SANDY LOAM
COVER	SPRUCE, FIR, PINE, HEMLOCK, MAPLE, OAK, BIRCH, BEECH
FISH	PERCA FLAVESCENS, SALVELINUS FONTINALIS
PHYTOPLANKTON	ANABAENA FLOS-AQUAE, ANACYSTIS INCERTA, TABELLARIA FLOCCULOSA, STAURASTRUM CUSPIDATUM
ZOOPLANKTON	CHONOCHILUS UNICORNIS, POLYARTHA REMATA, EUBOSMINA LONGISPINA

Luxton Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	100	29	7.2	L 0.0100	0.13	-1.1	4.7	2.5	0.37	0.33	2.3	3.8	0.2	0.3	L 0.0100	0.15
18-Oct-83	25	25	5.6	L 0.0100	0.1	-0.4	5	2.8	0.35	0.18	2.6	4	0.2	0.25	0.01	0.08
02-May-84	80	30	9	L 0.0100	0.08	-1.2	4.4	2.5	0.36	0.28	2.5	3.6	0.2	0.29	0.01	0.12
17-Oct-84										0.14					0.01	0.18
03-Jun-85	60	32	7.9	L 0.0100	0.1	-1	4.6	3.1	0.35	0.3	2.7	4.1	0.4	0.4	0.01	0.14
22-Oct-85	30	29	5.3	L 0.0100	L 0.1000	-0.4	4.9	3	0.38	0.19	3.3	4.3	0.27	0.35	0.012	0.088
27-May-86	70	29	7.9	L 0.0100	0.13	-0.7	4.7	2.5	0.36	0.29	2.4	4.2	0.26	0.33	0.01	0.15
21-Oct-86	90	28	10	0.02	0.14	-0.6	4.8	2.6	0.38	0.39	2.2	4.2	0.24	0.34	0.01	0.27
21-May-87	90	28	7.1	L 0.0100	L 0.1000	-0.8	4.7	2.5	0.34	0.3	2.1	3.8	0.24	0.3	0.02	0.21
08-Oct-87	20	28	5.2	L 0.0100	L 0.1000	-0.7	4.8	2.7	0.36	0.23	2.7	3.8	0.28	0.32	0.01	0.1

21-May-88	75	27	6.9	L 0.0100	L 0.1000	-0.4	4.7	2.4	0.34	0.28	2.2	3.5	0.22	0.32	0.01	0.17
23-Nov-88	100	30	11	L 0.0100	0.11	-1	4.6	2.3	0.43	0.41	2.5	3.7	0.2	0.37	0.01	0.19
24-May-89	80	26	5.6	0.01	L 0.1000	-0.8	4.7	2.3	0.32	0.23	2.3	3	0.41	0.31	0.01	0.16
24-Oct-89	30	26	3.5	L 0.0100	0.16	-0.2	5.1	2.7	0.34	0.17	2.9	3.6	0.26	0.34	0.01	0.07
30-Oct-90	40	28	4.4	0.01	0.18	-0.2	4.9	2.6	0.34	0.25	2.8	3.5	0.24	0.28	L 0.0100	0.15
31-May-91	80	25	5.2	L 0.0100	0.14	-0.8	4.7	2.3	0.29	0.28	2.5	3.3	0.31	0.25	0.01	0.15
15-Oct-91	55	30	8.9	L 0.0100	0.21	-0.3	4.7	2.8	0.36	0.39	2.9	3.9	0.29	0.31	0.01	0.2
03-Jun-92	110	32	8.3	L 0.0100	0.15	-1.6	4.5	2.3	0.27	0.16	1.7	3.7	0.25	0.28	0.01	0.14
22-Oct-92	15	24	2.5	L 0.0200	0.13	-0.7	4.9	2.7	0.31	0.14	2.7	3.6	0.28	0.28	L 0.0100	0.14
05-Jul-93	45	24.9	5.6	L 0.0100	0.15	-0.1	4.8	2.6	0.29	0.29	2.2	3.5	0.28	0.34	L 0.0100	0.15
19-Oct-93	20	23	4.4	L 0.0200	0.11	-0.6	5	2.8	0.34	0.17	2.5	3.9	0.27	0.33	0.01	0.08
02-Jun-94	70	24	8.3	L 0.0200	0.16	-1	4.7	2.1	0.22	0.26	2	3.1	0.31	0.25	0.01	0.16
03-Nov-94	45	24	6.6	L 0.0200	0.09	-0.7	4.8	2.6	0.3	0.25	2.1	3.5	0.28	0.27	0.01	0.14

25-May-95	65	30	6.4	L 0.0200	0.05	-1.1	4.6	2.8	0.33	0.27	2.1	4.1	0.3	0.26	0.01	0.13
16-Oct-95	25	27	4.2	L 0.0200	0.05	-0.2	5	3	0.332	0.16	2.34	4.31	0.32	0.273	0.01	0.09
03-Jun-96	25	26.4	7.2	L 0.0200	0.06	-1	4.7	2.7	0.29	0.29	2.1	3.67	0.28	0.3	L 0.0100	0.13
16-Oct-96	100	26.4	12.9	L 0.0200	0.16	-0.1	4.7	2.7	0.3	0.49	1.65	3.1	0.23	0.27	L 0.0100	0.23
27-May-97	70	24.2	7.1	L 0.0200	0.08	-0.79	4.7	2.21	0.22	0.26	1.73	2.98	0.28	0.19	L 0.0100	0.12
29-Oct-97	20	23.9	3.2	L 0.0200	0.07	-0.66	4.9	2.39	0.26	0.14	2.37	3.36	0.26	0.24	L 0.0100	0.05
05-May-98	80	24.5	8.8	L 0.0200	0.09	-0.52	4.7	2.01	0.24	0.28	1.95	2.6	0.2	0.21	L 0.0100	0.13
19-Oct-98	70	27.8	10.7	L 0.0200	0.07	-0.82	4.57	2.24	0.33	0.33	2.35	2.85	0.28	0.34	0.01	0.15
26-May-99	59	24	7	L 0.0200	0.06	-0.31	4.72	2.3	0.29	0.29	2.07	3.14	0.23	0.27	L 0.0100	0.11
07-Oct-99	50	30.3	7.6	L 0.0200	0.11	4.83	6.88	2.59	0.33	0.257	2.4	3.59	0.22	0.28	0.00959	0.131
16-May-00	69	30.5	9.1	L 0.0200	0.07	-1.28	4.58	2.61	0.35	0.312	2	4.16	0.23	0.3	0.00711	0.134
18-Sep-00	11	30	2.8	L 0.0200	0.04	-1.51	4.57	2.7	0.31	0.0673	2.51	4.48	0.21	0.19	0.00592	L 0.0500

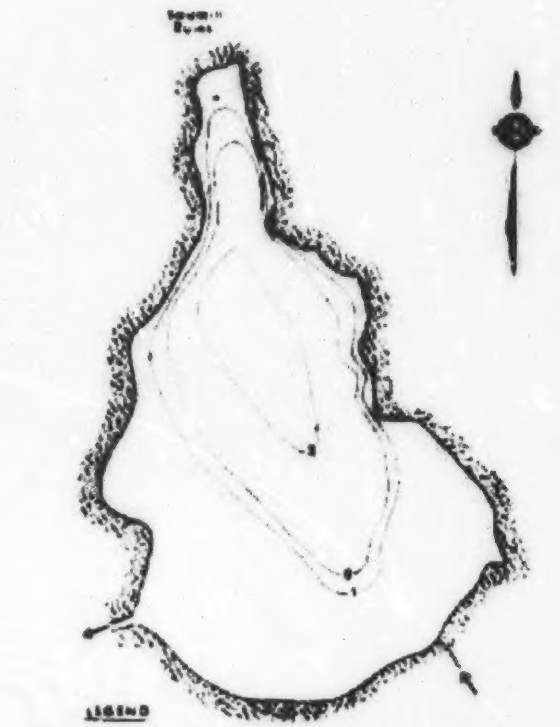
McGinty Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0093	44 21 37	65 09 38

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
105	4.37	1.0	61000	13.9

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.0	0.3	0.1	4.0	1.4

GEOLOGY	HALIFAX SLATE, SCHIST, MINOR QUARTZITE
SOILS	PEAT
COVER	MAPLE, BIRCH, OAK, BEECH, PINE SPRUCE, HEMLOCK
FISH	NOTEMIGONUS CRYSOLEUCAS, SALVELINUS FONTINALIS
PHYTOPLANKTON	EUNOTIA BIDENTULA, FRAGILLARIA CONSTRUENS V. VENTER, DIATOMA ANCEPS,SURIRELLA OVALIS, CLOSTERIDIUM DIANAE
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA CRASSA, KELLICOTTIA BOSTONIENSIS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LEGEND
CONTOUR INTERVAL OF 1 METER
↑ DIRECTION OF FLOW
• ROCKS

McGINTY LAKE

McGinty Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	50	25	6.9	L 0.0100	0.13	2	6	2.6	0.5	0.1	1.5	3.7	0.2	1.1	0.02	0.23
18-Oct-83	70	27	9.7	L 0.0100	0.14	3.5	5.9	2.8	0.6	0.075	1.2	3.6	0.1	1.3	L 0.0100	0.28
03-May-84	45	24	6	L 0.0100	0.09	1.7	5.8	2.5	0.46	0.077	2	3.8	0.1	0.95	0.01	0.1
17-Oct-84	70	28	11	L 0.0100	0.15	3.4	6.6	2.8	0.62	0.072	2.1	3.6	0.27	1.4	0.02	0.4
03-Jun-85	40	26	6.6	L 0.0100	0.11	1.9	5.9	2.7	0.35	0.07	2	3.9	0.2	1	0.02	0.25
23-Oct-85	60	27	8.8	L 0.0100	0.12	3.2	6.3	2.8	0.6	0.062	1.3	3.7	0.2	1.3	0.016	0.34
28-May-86	50	24	6	L 0.0100	0.15	1.8	6.2	2.3	0.46	0.08	1.6	3.6	0.17	0.98	0.04	0.19
21-Oct-86	90	26	11	0.01	0.15	2.4	6.2	2.6	0.59	0.11	2.1	4.3	0.27	1.2	0.02	0.43
20-May-87	50	23	6.8	L 0.0100	L 0.1000	1.8	6.2	2.5	0.46	0.065	1.5	3.7	0.25	0.88	0.02	0.25
07-Oct-87	20	27	6.3	L 0.0100	0.13	2.6	6.4	2.7	0.55	0.035	1.8	3.5	0.25	1	0.02	0.12

21-May-88	65	24	5.7	L 0.0100	L 0.1000	2.6	6	2.4	0.48	0.077	1.8	3.2	0.27	1	0.04	0.24
23-Nov-88	100	26	11	L 0.0100	0.12	2.4	5.8	2.5	0.63	0.11	1.7	3.4	0.28	1.3	0.03	0.32
24-May-89	55	22	4.9	0.01	L 0.1000		6.1	2.3	0.45	0.061	1.7	2.7	0.56	0.94	0.05	0.25
24-Oct-89	50	27	5.6	0.01	0.3	3.5	6.3	2.8	0.54	0.051	2.4	3.2	0.23	1.3	0.01	0.19
05-Jun-90	160	21.9	12.8	0.03	0.22	0.2	4.8	1.8	0.3	0.11	0.7	2.1	L 0.1000	0.66	0.02	0.27
30-Oct-90	50	26	7	0.02	0.22	3.3	6.3	2.7	0.55	0.07	1.8	3.2	0.23	1.1	0.01	0.29
31-May-91	60	21	5	L 0.0100	0.17	2.6	6	2.3	0.42	0.042	1.7	2.7	0.24	0.86	L 0.0100	0.08
17-Oct-91	55	28	7.8	0.01	0.32	3.5	6	2.8	0.67	0.12	2.5	3.4	0.31	1.35	0.06	0.36
03-Jun-92	55	21	4.3	L 0.0100	0.16	2.4	6.3	2.4	0.47	0.069	2.3	3.3	0.25	0.89	0.02	0.2
22-Oct-92	20	23	4.2	L 0.0200	0.24	2.3	6.3	2.6	0.51	0.034	2.3	3.2	0.21	0.85	0.01	0.14
05-Jul-93	70	23.7	6	L 0.0100	0.23	2.7	6	2.6	0.46	0.1	1.4	3.2	0.26	1	0.03	0.39
19-Oct-93	40	23	7.6	L 0.0200	0.28	2.7	6.2	2.9	0.56	0.044	1.8	3.7	0.22	1.3	0.01	0.18
28-May-94	65	20	8	L 0.0200	0.11	1.4	5.7	2.1	0.38	0.1	1.3	2.4	0.23	0.8	0.03	0.2

03-Nov-94	45	24	8.3	L 0.0200	0.12	2.3	5.9	2.7	0.56	0.062	1.8	3.2	0.25	1.1	L 0.0100	0.15
24-May-95	60	25	6	L 0.0200	0.08	2	5.9	2.8	0.49	0.094	1.7	3.99	0.26	0.97	0.05	0.24
16-Oct-95	45	27	7.6	L 0.0200	0.09	3.3	6.4	3	0.626	0.042	1.39	3.79	0.21	1.15	0.01	0.18
03-Jun-96	45	22.3	6.5	L 0.0200	0.11	1.9	5.9	2.6	0.5	0.1	1.79	3.48	0.21	0.94	0.02	0.18
16-Oct-96	120	26.4	14.2	L 0.0200	0.19	3	6	2.6	0.59	0.19	0.78	3.1	0.22	1.32	0.02	0.54
18-May-98	65	23	7.8	L 0.0200	0.15	2.6	5.9	2.26	0.44	0.092	1.66	2.67	0.26	0.9	0.06	0.27
26-Oct-98	80	27.3	12.1	L 0.0200	0.12	2.8	5.82	2.61	0.67	0.13	1.94	3.02	0.33	1.36	0.02	0.27
26-May-99	49	21.3	6.7	L 0.0200	0.08	1.89	6.03	2.25	0.45	0.084	1.54	2.8	0.22	0.95	0.04	0.27
07-Oct-99	95	26.4	13.8	L 0.0200	0.16	3.11	6.04	2.64	0.67	0.13	1.44	3.13	0.29	1.45	0.0431	0.594
16-May-00	50	24	6.7	L 0.0200	0.06	1.19	5.97	2.46	0.5	0.085	1.51	3.89	0.13	0.95	0.0164	0.135
18-Sep-00	35	25.1	5.5	L 0.0200	0.08	2.68	6.43	2.85	0.59	0.0327	1.29	3.92	0.14	1.04	0.0126	0.17

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:45:50

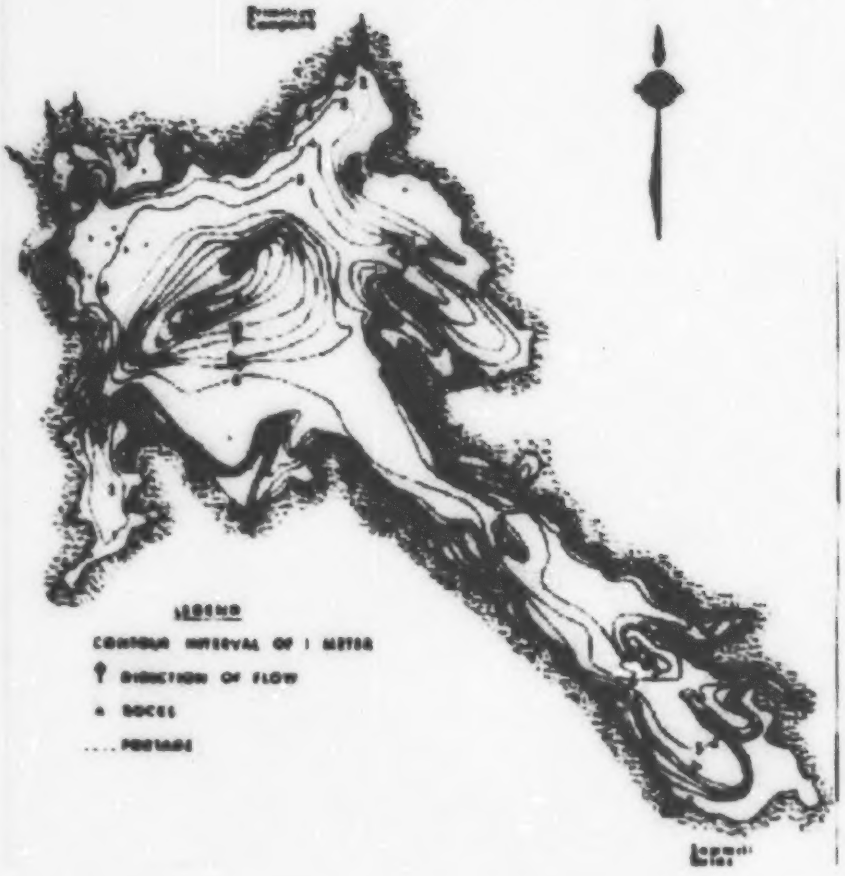
Mountain Lake

Drainage Basin	Station Number	Latitude	Longitude
Long Harbour	NF02ZF0004	47 50 45	55 07 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
183	580.0	44.4	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
22.0	5.0	1.7	0.0	0.0

GEOLOGY	DEVONIAN GRANITE, GRANODIORITE, MONZONITE, QUARTZ, DIORITE, SYENITE
SOILS	GLEYSOLS, GLEYED & ORTHIC HUMO-FERRIC & FERRO-HUMIC PODZOLS. ORGANIC SOILS IN FENS & BOGS
COVER	BLACK SPRUCE FOREST WITH ABUNDANT BOGS
FISH	NOT SAMPLED
PHYTOPLANKTON	ANACYSTIS AERUGINOSA V. MAJOR, MERISMOPEDIA GLAUCA, ASTERIONELLA GRACILLIMA, HORMIDIUM KLEBSII
ZOOPLANKTON	KERATELLA TAUROCEPHALA, CALANOID COPEPODS


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
ROCKS
PORTAGE

Mountain Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	10	23	3.4	0.01	0.11	-0.4	5.1	2.4	0.37	0.11	2.7	3.8	0.2	0.5	0.02	0.06
18-Oct-83	5	22	2.6	L 0.0100	0.08	0.1	5.4	2.6	0.32	0.055	2.2	3.9	0.2	0.37	0.03	0.06
03-May-84	25	24	4	0.03	0.06	0.1	5	2.6	0.36	0.11	2.2	3.9	0.2	0.38	0.03	0.08
17-Oct-84	10	23	2.6	L 0.0100	L 0.1000	-0.1	5.3	2.7	0.34	0.064	2.2	3.9	0.22	0.42	0.03	0.08
03-Jun-85	5	24	3.8	0.02	L 0.1000	-0.2	5.2	2.5	0.35	0.12	2.5	4.2	0.15	0.5	0.03	0.08
23-Oct-85	L 5.0000	23	2.8	0.01	L 0.1000	-0.1	5.4	2.6	0.36	0.066	2.3	4.1	0.16	0.4	0.028	0.084
28-May-86	10	24	3.6	L 0.0100	0.1	-0.1	5.2	2.3	0.35	0.11	1.93	3.8	0.19	0.39	0.03	0.06
21-Oct-86	10	23	4.8	0.01	L 0.1000	-0.1	5.3	2.3	0.36	0.12	2.4	4.1	0.19	0.38	0.03	0.09
20-May-87	20	23	3.6	0.01	0.13	-0.1	5.2	2.5	0.34	0.28	2.1	4	0.19	0.36	0.03	0.19
08-Oct-87	L 5.0000	23	2.8	L 0.0100	L 0.1000	0.1	5.3	2.5	0.35	0.064	2.2	4.1	0.23	0.34	0.02	0.08

21-May-88	20	22	3.7	L 0.0100	L 0.1000	0.5	5.3	2.4	0.34	0.12	2.1	3.4	0.21	0.37	0.03	0.09
23-Nov-88	20	24	4.6	L 0.0100	L 0.1000	-0.1	5.1	2.5	0.35	0.12	2.5	3.6	0.25	0.38	0.02	0.1
24-May-89	20	21	3.1	L 0.0100	L 0.1000	-0.1	5.1	2.3	0.33	0.11	2.2	3.6	0.2	0.36	0.04	0.08
24-Oct-89	5	22	2.2	L 0.0100	0.23	0.2	5.6	2.4	0.36	0.057	2.3	3.4	0.23	0.4	0.02	0.07
05-Jun-90	10	21.9	2.6	0.03	0.09	-0.1	5.2	2.4	0.32	0.11	2.2	3.1	0.23	0.38	0.03	0.08
30-Oct-90	L 5.0000	22	2.4	L 0.0500	0.09	0.4	5.5	2.5	0.3	0.07	2.4	3.4	0.23	0.33	0.03	0.06
31-May-91	25	20	3.1	L 0.0100	0.08	-0.1	5.2	2.3	0.3	0.13	2.2	3.4	0.25	0.34	0.03	0.07
22-Oct-91	10	23	3.5	L 0.0100	0.15	0.1	5.2	2.6	0.35	0.13	2.7	3	0.24	0.37	0.03	0.09
03-Jun-92	50	20	3.4	0.03	0.07	-0.3	5.3	2.4	0.44	0.13	1.9	3.6	0.23	0.41	0.03	0.08
22-Oct-92	L 5.0000	20	4.3	L 0.0200	0.13	0.1	5.4	2.5	0.29	0.066	2.4	3.4	0.24	0.34	0.03	0.08
05-Jul-93	15	21	2.6	L 0.0100	0.09	0.2	5.2	2.5	0.29	0.11	2	3.4	0.21	0.34	0.03	0.05
19-Oct-93	L 5.0000	19.5	1.8	L 0.0200	0.15	0.2	5.4	2.7	0.31	0.055	2.2	3.7	0.24	0.9	0.02	0.06
28-May-94	30	22		L 0.0200	0.09	0.1	5	2.2	0.27	0.15	1.7	3.1	0.23	0.31	0.04	0.1
04-																

Nov-94	10	19		L 0.0200	0.06	0.1	5.3	2.4	0.29	0.058	1.9	3.5	0.21	0.27	0.02	0.07
25-May-95	25	22		L 0.0200	0.05	-0.3	5.1	2.5	0.33	0.14	1.8	3.73	0.24	0.24	0.03	0.07
16-Oct-95	5	21		L 0.0200	0.04	0.1	5.4	2.5	0.297	0.048	1.95	3.71	0.21	0.315	0.02	0.045
03-Jun-96	40	21.6		L 0.0200	0.07	-0.1	5.1	2.6	0.3	0.14	1.89	3.7	0.22	0.29	0.03	0.07
16-Oct-96	30	21.9		L 0.0200	0.08	0.1	5	2.6	0.28	0.16	1.68	3.37	0.2	0.27	0.03	0.12
27-May-97	35	21.7		L 0.0200	0.11	1.9	6.4	2.32	0.26	0.15	1.38	3.22	0.2	1.13	0.03	0.1
29-Oct-97	10	20.1		L 0.0200	0.05	-0.25	5.5	2.31	0.26	0.064	1.83	3.41	0.19	0.33	0.02	0.07
26-May-98	15	19.9		L 0.0200	0.09	0.34	5.4	2.25	0.27	0.074	1.99	3.08	0.12	0.28	0.03	0.03
20-Oct-98	15	21.2		L 0.0200	0.04	-0.18	5.12	2.2	0.29	0.099	2.07	3.18	0.18	0.33	0.02	0.08
26-May-99	20	19.7		L 0.0200	0.05	0.17	5.14	2.29	0.29	0.14	1.87	3.05	0.19	0.3	0.03	0.05
07-Oct-99	13	21.2	3	L 0.0200	0.06	0.36	5.22	2.39	0.3	0.0946	2.11	3.33	0.2	0.31	0.0263	0.068
16-May-00	30	23.1	4.5	0.03	0.13	-0.62	5.07	2.56	0.34	0.177	1.84	3.73	0.17	0.37	0.0273	0.077
18-Sep-00	8	21.9	1.9	L 0.0200	0.02	-0.2	5.46	2.63	0.33	0.0699	2.06	3.91	0.19	0.3	0.0255	0.05

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:49:20

Mud Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0081	44 16 49	65 13 13

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
100	7.0	6.10	70000	71.80

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.0	0.5	0.2	2.20	1.00

GEOLOGY	HALIFAX SLATE, SCHIST, MINOR QUARTZITE
SOILS	SANDY LOAMS, PEAT
COVER	SPRUCE, FIR, HEMLOCK, SHAGNUM & GRASSLAND
FISH	PERCA FLAVESCENS, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, SALVELINUS FONTINALIS
PHYTOPLANKTON	ANABAENA FLOS-AQUAE, AMPHIPLEURA PELLUCIDA, MERIDION CIRCULARE, GLOEOCYSTIS GIGAS
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA REMATA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS

LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
ROCKS
SCALE

Mud Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	10	24	2	L 0.0100	0.08	-0.3	5.1	2.3	0.43	0.063	2.1	4	0.2	0.2	0.01	0.12
18-Oct-83	100	30	11.7	0.02	0.16	-0.1	4.9	3	0.55	0.082	2.5	4.4	0.2	0.75	0.04	0.37
03-May-84	70	27	6.2	L 0.0100	0.07	-0.4	4.7	2.6	0.36	0.085	2.6	3.7	0.1	0.61	0.02	0.13
17-Oct-84	80	31	8.6	L 0.0100	0.15	0.1	5	3.2	0.54	0.075	2.6	4.8	0.22	0.79	0.04	0.25
03-Jun-85	70	29	7.8	L 0.0100	L 0.1000	-0.5	4.8	2.5	0.5	0.1	2.7	3.9	0.19	0.65	0.02	0.24
23-Oct-85	70	33	9.7	L 0.0100	L 0.1000	-0.4	4.8	3.2	0.6	0.072	2.5	4.7	0.2	0.84	0.041	0.31
28-May-86	80	28	8.3	L 0.0100	0.13	-0.1	4.9	2.7	0.44	0.08	2.1	3.9	0.19	0.67	0.02	0.26
21-Oct-86	110	31	12	0.01	0.12	-0.5	4.8	2.9	0.54	0.11	2.5	4.4	0.38	0.75	0.03	0.41
20-May-87	90	26	6.3	L 0.0100	L 0.1000	-0.6	5	2.6	0.4	0.079	2.6	4.2	0.19	0.61	0.03	0.22
08-Oct-87	80	41	9.8	L 0.0100	L 0.1000	-0.5	4.8	3.4	0.86	0.094	5.7	4.9	0.26	1.2	0.06	0.34

21-May-88	100	27	5.1	L 0.0100	L 0.1000	0.2	5	2.5	0.47	0.084	2.4	3.7	0.23	0.67	0.02	0.22
23-Nov-88	110	31	11	L 0.0100	0.11	-1	4.6	2.3	0.53	0.097	2.6	3.5	0.19	0.75	0.02	0.28
24-May-89	100	26	4.6	0.01	L 0.1000	-0.1	4.9	2.5	0.41	0.073	2.5	3.4	0.22	0.66	0.02	0.25
24-Oct-89	110	35	9.2	L 0.0100	0.38	-0.1	4.8	3.1	0.66	0.09	3.6	4.3	0.25	1	0.05	0.24
05-Jun-90	90	26.5	6.8	0.03	0.15	-0.2	4.8	2.5	0.4	0.09	2.9	3.1	0.18	0.65	0.02	0.21
30-Oct-90	100	37	10.2	L 0.0500	0.22	0.1	4.9	3.4	0.66	0.094	3.6	4.5	0.3	0.98	0.05	0.43
31-May-91	85	25	5.1	L 0.0100	0.17	0.2	5	2.6	0.4	0.084	2.6	3.7	0.27	0.57	0.02	0.22
22-Oct-91	80	33	11.2	L 0.0100	0.27	0.1	4.8	3.1	0.6	0.11	2.8	3.9	0.28	0.88	0.04	0.41
03-Jun-92	75	25	5.6	L 0.0100	0.13	-0.1	5.1	2.7	0.58	0.08	2.6	4.1	0.23	0.55	0.02	0.21
22-Oct-92	105	33	8.7	L 0.0200	0.28	-0.1	4.9	3.4	0.66	0.095	3.4	4.6	0.21	1.2	0.05	0.43
05-Jul-93	110	26.8	7.2	L 0.0100	0.21	-0.2	4.9	2.5	0.46	0.1	2.3	3.5	0.19	0.67	0.03	0.39
19-Oct-93	70	30	10.4	L 0.0200	0.22	0.5	5.1	3.1	0.57	0.08	3.1	4.4	0.29	0.86	0.04	0.31
28-May-94	75	25	8.3	L 0.0200	0.15	0.2	5.1	2.4	0.33	0.097	2.2	3.3	0.44	0.55	0.03	0.22
03-																

Nov-94	100	31	11.9	L 0.0200	0.13	0.1	4.8	3.3	0.58	0.073	2.3	4.7	0.41	0.84	0.04	0.43
24-May-95	90	28	7.2	L 0.0200	0.07	-1.2	4.8	2.9	0.37	0.09	2.45	3.98	0.24	0.58	0.03	0.24
16-Oct-95	80	35	9.5	L 0.0200	0.08	-0.1	4.9	3.6	0.64	0.065	4.13	4.6	0.3	0.835	0.04	0.3
03-Jun-96	60	26.3	7.4	L 0.0200	0.08	-0.1	4.9	2.8	0.39	0.1	2.35	3.77	0.22	0.64	0.02	0.2
16-Oct-96	135	34.3	13.5	L 0.0200	0.15	-0.2	4.6	2.9	0.47	0.12	1.8	3.83	0.25	0.73	0.03	0.38
14-Jun-98	65	27.5	7.5	L 0.0200	0.1	-0.24	4.91	2.6	0.39	0.075	2.57	3.43	0.21	0.51	0.02	0.19
27-Oct-98	125	35.2	15.7	L 0.0200	0.1	-0.55	4.59	2.92	0.66	0.12	3.19	3.93	0.3	0.83	0.04	0.41
26-May-99	76	27.8	8.2	L 0.0200	0.08	-0.21	4.79	2.64	0.4	0.084	2.62	3.45	0.25	0.56	0.02	0.22
07-Oct-99	149	36.8	17.7	L 0.0200	0.14	-0.6	4.54	3.1	0.64	0.126	2.78	3.95	0.24	0.86	0.0355	0.557
16-May-00	86	30	9.1	L 0.0200	0.08	-1.14	4.72	2.57	0.44	0.104	2.42	3.92	0.18	0.63	0.018	0.216
18-Sep-00	124	26.7	10.1	L 0.0200	0.09	0.02	5	2.93	0.49	0.0791	1.68	3.99	0.11	0.67	0.0249	0.44

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Last Modified On: Tuesday, January 09, 2001 14:51:59

Pebbleloggitch Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0010	44 18 06	65 21 05

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
120	33.4	1.6	474000	2.87

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.0	0.8	2.5	1.42

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	GIBRALTAR SANDY LOAM & PEAT
COVER	MAPLE, OAK, BIRCH, SPHAGNUM BOG
FISH	PERCA FLAVESCENS
PHYTOPLANKTON	SCYTONEMA MIRABILE, COCCONEIS PLACENTULA, MOUGEOTIA GENUFLEXA, GLOEOCYSTIS GIGAS
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA, CALANOID COPEPODS

Pebbleloggitch Lake

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	110	30	8.5	L 0.0100	0.11	-1.4	4.5	2.4	0.34	0.23	1.7	3.5	0.2	0.3	L 0.0100	0.17
18-Oct-83	100	29	10	L 0.0100	0.16	-1.1	4.6	2.7	0.35	0.2	2.4	3.7	0.2	0.31	L 0.0100	0.16
03-May-84	100	30	10	L 0.0100	0.06	-1.8	4.4	2.3	0.28	0.16	1.9	3.6	0.1	0.27	0.02	0.1
17-Oct-84	160	31	14	L 0.0100	0.15	-1.3	4.6	2.8	0.38	0.28	2	3.9	0.27	0.4	0.01	0.32
03-Jun-85	90	35	9.8	L 0.0100	L 0.1000	-1.9	4.4	2.7	0.4	0.25	2.2	4.3	0.2	0.32	L 0.0100	0.16
23-Oct-85	120	33	9.9	L 0.0100	L 0.1000	-1.4	4.6	2.8	0.4	0.21	2.6	4.3	0.16	0.35	0.014	0.19
27-May-86	100	31	9.2	L 0.0100	0.15	-1.6	4.5	2.2	0.29	0.19	2.1	3.7	0.19	0.3	L 0.0100	0.14
21-Oct-86	180	30	16	0.02	0.14	-1.6	4.5	2.5	0.35	0.3	1.7	3.5	0.23	0.35	L 0.0100	0.35
21-May-87	100	30	7.5	L 0.0100	L 0.1000	-1.6	4.6	2.3	0.27	0.18	1.7	4	0.22	0.29	L 0.0100	0.17
08-Oct-87	100	36	10	L 0.0100	L 0.1000	-1.9	4.5	2.7	0.41	0.27	3.3	3.9	0.29	0.36	0.01	0.15

21-May-88	100	28	8.9	L 0.0100	L 0.1000	-1.1	4.6	2.3	0.32	0.18	1.8	3.7	0.14	0.18	L 0.0100	0.17
23-Nov-88	160	34	16	L 0.0100	0.24	-1.7	4.4	2.4	0.45	0.3	2.2	3.3	0.2	0.4	L 0.0100	0.24
24-May-89	100	28	6	L 0.0100	L 0.1000	-1.5	4.6	2.2	0.28	0.15	1.5	3.2	0.16	0.31	L 0.0100	0.1
24-Oct-89	100	31	7.4	L 0.0100	0.38	-1.3	4.6	3.2	0.38	0.21	3.3	3.4	0.29	0.46	0.01	0.14
05-Jun-90	110	29.9	8.1	L 0.0100	0.17	-1.5	4.5	2.5	0.26	0.17	2.6	2.8	0.24	0.3	L 0.0100	0.12
30-Oct-90	130	33	10	L 0.0500	0.24	-0.7	4.5	2.7	0.36	0.25	2.8	3.4	0.31	0.31	L 0.0100	0.21
31-May-91	115	27	6.9	L 0.0100	0.18	-1.4	4.6	2.2	0.26	0.2	2	3.1	0.23	0.25	L 0.0100	0.15
15-Oct-91	110	35	13.6	0.01	0.31	-1.7	4.5	2.8	0.4	0.34	2.5	3.6	0.33	0.46	0.05	0.29
03-Jun-92	90	26	6.2	L 0.0100	0.13	-0.1	4.9	2.3	0.33	0.16	1.4	4	0.2	0.37	0.01	0.15
22-Oct-92	65	29	5.4	L 0.0100	0.18	-1.2	4.6	2.8	0.34	0.17	2.5	4	0.22	0.34	L 0.0100	0.16
05-Jul-93	100	27.7	7.7	L 0.0100	0.21	-1	4.5	2.4	0.29	0.22	1.6	3.5	0.2	0.34	0.01	0.16
19-Oct-93	50	28	7.9	L 0.0200	0.16	-1.1	4.6	2.9	0.33	0.017	2.4	4	0.23	0.3	0.01	0.11
02-Jun-94	105	25	11	L 0.0200	0.15	-1.3	4.5	1.9	0.17	0.18	1.3	2.7	0.26	0.23	L 0.0100	0.13
03-																

Nov-94	105	29	12.7	L 0.0200	0.14	-1.3	4.5	2.6	0.33	0.27	2	3.4	0.23	0.28	0.01	0.2
24-May-95	85	31	8.4	L 0.0200	0.06	-1.8	4.5	2.8	0.32	0.21	1.73	4.45	0.19	0.24	L 0.0100	0.13
16-Oct-95	70	31	7.5	L 0.0200	0.08	-0.5	4.7	3.1	0.316	0.16	2.13	4.54	0.28	0.3	L 0.0100	0.12
03-Jun-96	40	28.7	9.2	L 0.0200	0.09	-1.4	4.5	2.5	0.27	0.21	1.7	3.56	0.16	0.32	L 0.0100	0.14
16-Oct-96	200	30.8	20.3	L 0.0200	0.17	-1.2	4.4	2.5	0.3		1.23	2.67	0.26	0.28	L 0.0100	0.3
27-May-97	90	24.5	8.2	L 0.0200	0.09	-1.5	4.6	1.98	0.19	0.138	1.19	2.8	0.17	0.19	L 0.0100	0.11
27-Nov-97	95	36.6	10.8	L 0.0200	0.14	-1.53	4.4	2.67	0.39	0.23	3.2	3.44	0.22	0.41	L 0.0100	0.14
17-May-98	110	24.7	10.8	L 0.0200	0.12	-0.93	4.6	1.96	0.23	0.21	1.58	2.55	0.1	0.23	L 0.0100	0.15
19-Oct-98	130	36.6	17.7	L 0.0200	0.11	-1.87	4.33	2.37	0.38	0.35	2.46	2.93	0.33	0.42	0.01	0.17
26-May-99	100	27.2	9.9	L 0.0200	0.08	-0.64	4.56	2.29	0.28	0.23	1.82	3.17	0.19	0.27	L 0.0100	0.13
07-Oct-99	112	35.7	14.3	L 0.0200	0.14	-1.51	4.37	2.75	0.37	0.263	2.55	3.64	0.26	0.33	0.00697	0.187
16-May-00	98	32.7	10.7	L 0.0200	0.09	-2.15	4.45	2.64	0.34	0.222	1.58	4.14	0.13	0.36	0.00487	0.138
18-Sep-00	50	31.2	5.3	L 0.0200	0.06	-1.31	4.59	2.93	0.34	0.141	2.25	4.64	0.19	0.28	0.00794	0.08

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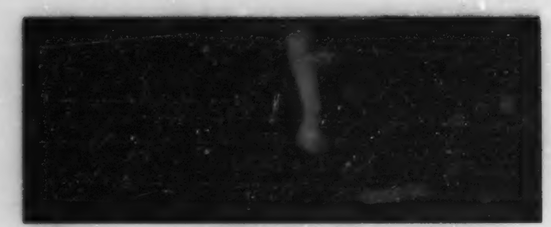
Peskawa Lake

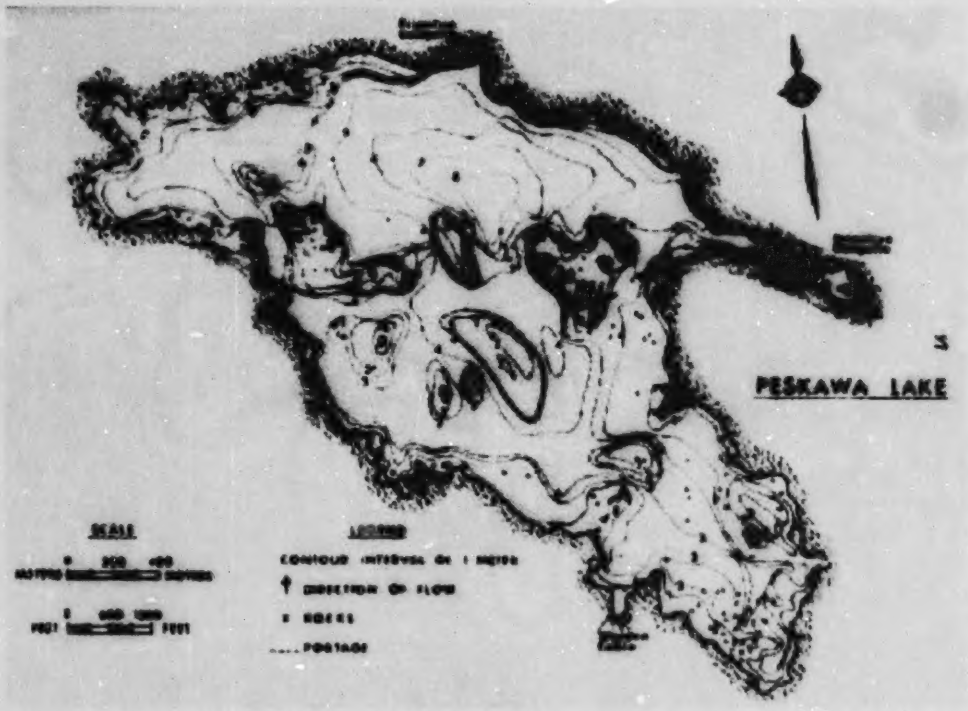


Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0094	44 19 04	65 21 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
120	388.5	66.0	12249000	13.9

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
13.3	5.0	3.3	9.0	3.16

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	GIBRALTAR SANDY LOAM
COVER	MAPLE, OAK, BIRCH, BEECH
FISH	PERCA FLAVESCENS, FUNDULUS DIAPHANUS, ICTALURUS NEBULOSUS,CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS, SALVELINUS FONTINALIS
PHYTOPLANKTON	AMPHIPLEURA PELLUCIDA, PLEUROTAENIUM CORONATUM V. NEDULOSUM,CLOSTERIDIUM KUETZINGHII, GLOEOCYSTIS GIGAS
ZOOPLANKTON	KERATELLA TAUROCEPHALA, CALANOID COPEPODS


PESKAWA LAKE
S
SCALE
0 200 400
METRES METRES
0 600 1200
FEET FEET
LEGEND
CONTOUR INTERVAL OF 1 METRE
DIRECTION OF FLOW
ROCKS
PORTAGE

Peskawa Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	80	29	8.1	L 0.0100	0.11	-1.1	4.6	2.5	0.35	0.28	2.1	3.9	0.2	0.35	0.01	0.13
18-Oct-83	55	33	6.3	0.23	0.31	-1.3	4.6	2.8	0.35	0.21	2.7	3.8	0.2	0.31	0.02	0.12
03-May-84	70	30	9	L 0.0100	0.09	-1.2	4.4	2.6	0.38	0.2	2.3	3.9	0.2	0.34	0.01	0.11
17-Oct-84	80	28	9.2	L 0.0100	0.11	-0.6	4.8	2.9	0.34	0.21	2.1	4.1	0.27	0.44	0.02	0.19
03-Jun-85	60	33	8	0.01	L 0.1000	-1.2	4.6	3.1	0.31	0.29	2.5	4.3	0.3	0.35	0.01	0.15
23-Oct-85	45	30	5.9	L 0.0100	0.1	-0.6	4.9	3	0.38	0.22	2	4.4	0.24	0.44	0.024	0.12
27-May-86	70	31	7.4	L 0.0100	0.14	-1	4.7	2.7	0.35	0.25	2.2	4.1	0.25	0.36	0.02	0.13
21-Oct-86	100	30	11	0.03	0.14	-0.8	4.7	2.8	0.36	0.3	2.5	4.1	0.23	0.4	0.02	0.23
21-May-87	90	29	7.9	L 0.0100	L 0.1000	-1	4.7	2.6	0.31	0.25	2.2	4.1	0.23	0.31	0.02	0.14
08-Oct-87	50	29	6.8	L 0.0100	0.1	-0.7	4.8	2.7	0.36	0.25	2.7	3.9	0.27	0.38	0.02	0.14

21-May-88	80	27	6.8	L 0.0100	0.11	-0.6	4.7	2.5	0.33	0.22	2	3.4	0.21	0.34	L 0.0100	0.1
23-Nov-88	100	30	9.8	L 0.0100	0.13	-0.9	4.6	2.6	0.4	0.31	2.5	3.4	0.21	0.42	0.02	0.2
24-May-89	70	27	4.9	0.02	L 0.1000	-1	4.7	2.4	0.3	0.19	2.3	3.1	0.31	0.33	0.01	0.13
24-Oct-89	40	26	3.7	0.01	0.16	-0.4	4.9	2.6	0.34	0.16	2.9	3.7	0.25	0.38	0.02	0.09
05-Jun-90	80	28.9	6.7	L 0.0100	0.18	-1	4.7	2.8	0.3	0.21	2.6	3.2	0.34	0.34	L 0.0100	0.12
30-Oct-90	50	27	5.1	L 0.0500	0.16	0.1	4.9	2.6	0.31	0.21	2.8	3.5	0.24	0.29	0.02	0.15
31-May-91	85	26	5.7	L 0.0100	0.13	-0.9	4.7	2.4	0.29	0.26	2.5	3.4	0.3	0.29	0.01	0.14
15-Oct-91	60	30	8.9	0.01	0.22	-0.7	4.7	2.8	0.35	0.27	2.6	3.8	0.28	0.35	0.02	0.18
03-Jun-92	90	26	5.4	L 0.0100	0.12	-0.7	4.8	2.4	0.27	0.24	1.8	3.9	0.26	0.28	0.02	0.13
22-Oct-92	25	25	2.8	L 0.0100	0.12	-0.5	4.9	2.7	0.31	0.15	2.6	4	0.27	0.32	0.02	0.08
05-Jul-93	65	26.3	6.5	L 0.0100	0.16	-0.6	4.7	2.6	0.31	0.26	2.2	3.7	0.25	0.34	0.01	0.12
19-Oct-93	30	25	5.4	L 0.0200	0.11	-0.5	4.8	2.9	0.33	0.18	2.6	4.1	0.27	0.31	0.02	0.1
02-Jun-94	70	26	8.5	L 0.0200	0.1	-1	4.6	2.2	0.22	0.23	1.9	3.2	0.28	0.24	L 0.0100	0.14

03-Nov-94	60	25	7.7	L 0.0200	0.11	-0.5	4.7	2.6	0.3	0.22	2	3.7	0.29	0.3	0.02	0.15
24-May-95	60	30	6.6	L 0.0200	0.08	-1.4	4.6	2.9	0.32	0.25	2.15	4.53	0.29	0.24	0.01	0.12
16-Oct-95	40	28	5.5	L 0.0200	0.06	-0.2	4.8	3.2	0.305	0.16	2.26	4.29	0.32	0.321	0.02	0.11
03-Jun-96	40	27.3	6.8	L 0.0200	0.07	-1	4.6	2.8	0.28	0.25	2.07	3.72	0.25	0.31	L 0.0100	0.13
04-Oct-96	90	27	9.7	L 0.0200	0.16	-0.4	4.7	2.7	0.29		1.68	3.24	0.21	0.28		
27-May-97	65	24	6.2	L 0.0200	0.08	-1	4.7	2.15	0.21	0.21	1.63	3.08	0.25	0.22	0.01	0.1
29-Oct-97	25	24.4	3.4	L 0.0200	0.07	-0.87	4.8	2.27	0.24	0.13	2.21	3.32	0.26	0.27	0.02	0.07
17-May-98	75	23.9	8.4	L 0.0200	0.12	-0.45	4.8	2.17	0.24	0.25	2.02	2.77	0.2	0.25	0.01	0.12
22-Oct-98	75	29.1	11	L 0.0200	0.09	-0.99	4.53	2.46	0.34	0.31	2.29	3.09	0.3	0.39	0.02	0.13
26-May-99	70	26.5	7.8	L 0.0200	0.07	-0.73	4.6	2.36	0.29	0.27	2.11	3.18	0.22	0.26	0.01	0.12
07-Oct-99	56	28.5	8.2	L 0.0200	0.1	-0.47	4.62	2.67	0.32	0.235	2.34	3.69	0.24	0.33	0.0202	0.146
16-May-00	68	30.7	8.5	0.02	0.08	-1.58	4.57	2.82	0.34	0.292	1.98	4.22	0.22	0.32	0.0122	0.124
18-Sep-00	27	27.9	4	L 0.0200	0.03	-0.94	4.83	2.94	0.33	0.164	2.29	4.55	0.23	0.31	0.0218	0.07

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:59:14

Peskowesk Lake

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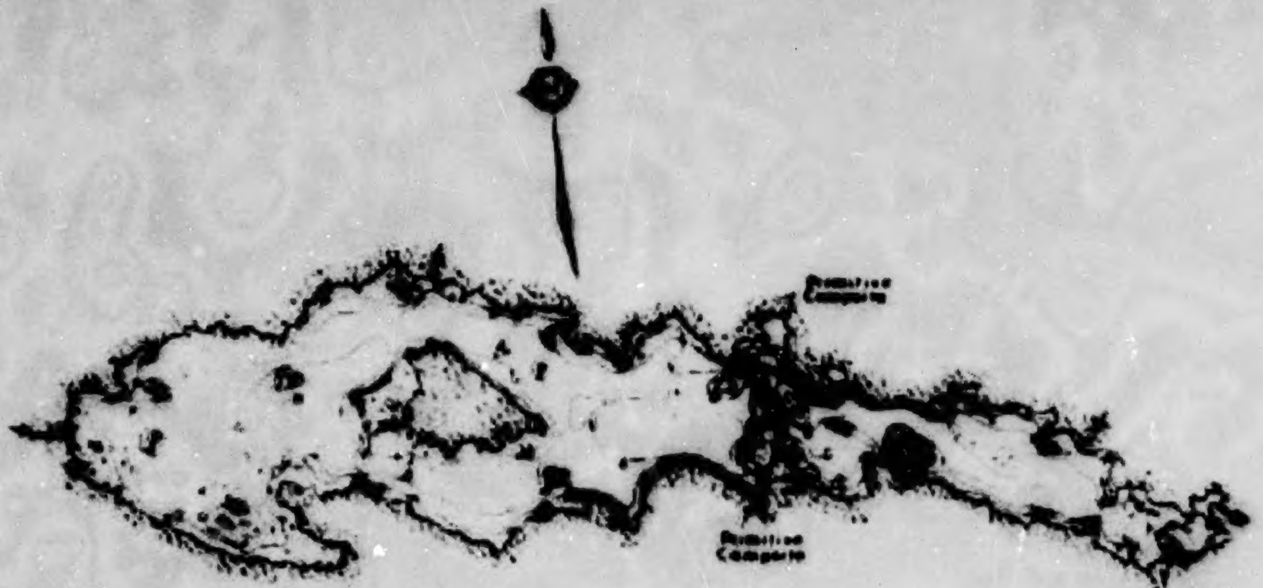
Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0075	44 19 00	65 16 58

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
105	685.0	85	263566000	2.73

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
25.5	9.8	1.5	13.00	3.85

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	GIBRALTAR & HALIFAX SANDY LOAMS
COVER	SPRUCE, FIR, PINE, HEMLOCK
FISH	PUNGITIUS PUNGITIUS, FUNDULUS DIAPHANUS, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS, COREGONUS CLUPEAFORMIS, SALVELINUS
PHYTOPLANKTON	DINOBRION DIVERGENS, PERIDINIUM CINCTUM V. LEMMERMANNI, VLOTHRIX AEQUALIS, CHLAMYDOMAS GLOBOSA
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA,CALANOID COPEPODS


Primitive Campsite
Primitive Campsite
Primitive Campsite

PESKOWESK LAKE

Peskowesk lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	50	28	5.2	0.01	0.1	-0.8	4.8	2.6	0.4	0.17	2.5	4	0.2	0.4	0.02	0.1
03-May-84	70	30	7.2	0.03	0.08	-0.8	4.6	2.6	0.4	0.21	2.6	4.2	0.2	0.36	0.03	0.14
17-Oct-84	40	25	4	L 0.0100	L 0.1000	-0.4	5	2.8	0.37	0.18	2.2	4.3	0.27	0.38	0.02	0.12
03-Jun-85	40	30	6.7	0.05	0.1	-0.7	4.8	2.8	0.42	0.24	2.6	4.5	0.24	0.5	0.02	0.14
23-Oct-85	10	28	4.3	L 0.0100	L 0.1000	-0.4	5	3	0.41	0.17	3	4.5	0.24	0.4	0.022	0.075
27-May-86	50	30	6.5	0.03	0.13	-0.7	4.8	2.7	0.38	0.26	2.8	4.4	0.26	0.39	0.02	0.12
21-Oct-86	45	27	7	0.03	0.11	-0.3	4.9	2.8	0.37	0.24	2.6	4.4	0.24	0.37	0.02	0.14
21-May-87	80	28	6.2	0.04	L 0.1000	-0.7	4.8	2.7	0.35	0.14	2.3	4.2	0.22	0.32	0.04	0.12
08-Oct-87	10	25	4.4	L 0.0100	L 0.1000	-0.1	5.1	2.6	0.35	0.18	2.4	4.2	0.25	0.32	0.03	0.09
21-May-88	65	27	6.7	L 0.0100	L 0.1000	-0.4	4.8	2.6	0.35	0.28	2.2	3.7	0.21	0.35	0.01	0.12

23-Nov-88	35	26	5.7	L 0.0100	L 0.1000	-0.4	4.9	2.6	0.35	0.2	2.3	3.4	0.24	0.36	0.02	0.1
23-Nov-88	35	26	5.4	L 0.0100	L 0.1000	-0.3	4.9	2.6	0.37	0.2	2.5	3.7	0.24	0.41	0.02	0.11
23-Nov-88	35	25	5.2	L 0.0100	L 0.1000	-0.3	4.9	2.5	0.39	0.21	2.5	3.7	0.22	0.37	0.02	0.12
24-May-89	60	26	5	0.02	L 0.1000	-0.7	4.7	2.4	0.34	0.21	2.2	3.3	0.22	0.34	0.02	0.11
24-Oct-89	20	24	3.1	L 0.0100	0.24	-0.1	5.2	2.5	0.36	0.14	2.7	3.5	0.23	0.4	0.02	0.08
05-Jun-90	40	27.4	5	0.02	0.12	-0.6	4.8	2.6	0.34	0.19	2.7	3.4	0.26	0.38	0.01	0.09
30-Oct-90	30	26	3.5	L 0.0500	0.15	0.1	5	2.6	0.31	0.17	2.9	3.6	0.29	0.29	0.02	0.1
31-May-91	65	25	5.2	0.02	0.16	-0.1	4.9	2.6	0.33	0.27	2.5	3.7	0.3	0.3	0.02	0.12
15-Oct-91	20	25	3.3	0.02	0.15	0.1	5.1	2.6	0.32	0.16	2.8	4.2	0.28	0.34	0.04	0.12
03-Jun-92	70	25	5.5	0.04	0.11	-0.8	4.8	2.6	0.53	0.27	2.1	3.8	0.25	0.34	0.02	0.14
22-Oct-92	15	22	2.5	0.03	0.09	-0.5	5.1	2.7	0.32	0.16	2.5	4.1	0.25	0.34	0.03	0.05
05-Jul-93	25	24.9	4.3	L 0.0100	0.13	-0.3	4.8	2.6	0.33	0.24	2.3	3.8	0.25	0.34	0.01	0.1
19-Oct-93	15	23	3.9	L 0.0200	0.1	-0.1	5.1	2.8	0.33	0.16	2.3	3.9	0.26	0.32	0.02	0.07
02-																

Jun-94	70	25	8.2	L 0.0200	0.1	-1.6	4.6	2.1	0.22	0.22	1.9	3.1	0.25	0.24	0.01	0.12
04-Nov-94	25	21	4	0.02	0.09	-0.1	5	2.4	0.27	0.15	2	3.5	0.26	0.27	0.02	0.11
24-May-95	55	26	6.5	L 0.0200	0.09	-0.9	4.7	2.7	0.31	0.29	2.04	4.09	0.27	0.28	0.02	0.12
16-Oct-95	25	27	4.5	0.02	0.06	-0.3	4.9	2.9	0.299	0.15	2.29	4.1	0.28	0.321	0.02	0.11
03-Jun-96	25	26.3	5.9	0.02	0.1	-1.1	4.7	2.8	0.31	0.29	2.1	3.88	0.26	0.32	0.02	0.13
16-Oct-96	60	24	7.9	L 0.0200	0.14	-0.1	4.8	2.7	0.28	0.27	1.75	3.45	0.24	0.33	0.02	0.15
27-May-97	60	23.4	6.5	L 0.0200	0.07	-0.82	4.8	2.38	0.25	0.24	1.62	3.26	0.25	0.27	0.01	0.13
29-Oct-97	20	22.9	3.4	0.03	0.09	-0.48	5	2.36	0.26	0.17	2.1	3.45	0.22	0.31	0.02	0.09
09-May-98	60	23.9	6.9	L 0.0200	0.11	-0.5	4.9	2.21	0.27	0.22	2.08	3.03	0.21	0.32	0.02	0.12
20-Oct-98	30	24.3	5.1	L 0.0200	0.06	-0.47	4.81	2.38	0.29	0.2	2.29	3.15	0.26	0.32	0.02	0.11
26-May-99	59	24.1	6.8	0.02	0.07	-0.09	4.78	2.37	0.31	0.28	2.13	3.16	0.22	0.32	0.01	0.13
07-Oct-99	24	24.1	4.8	L 0.0200	0.07	0.04	4.89	2.53	0.3	0.164	2.37	3.51	0.24	0.28	0.0225	0.111
16-May-00	58	28.8	7.8	0.04	0.12	-1.41	4.68	2.79	0.37	0.302	2.02	4.12	0.22	0.36	0.016	0.128
18-																

Sep-00	20	25.7	3.1	0.03	0.03	-0.57	5	2.83	0.36	0.166	2.28	4.37	0.22	0.31	0.0232	0.06

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:00:31

Poplar Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0088	44 21 15	65 26 19

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
170	84.0	5.60	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.0	1.50	1.0	0.0	0.0

GEOLOGY	EUBOSMINA LONGISPINA, CALANOID COPEPODS
SOILS	BAYSWATER & GIBRALTAR SANDY LOAMS, PEAT
COVER	SPRUCE, FIR, PINE, HEMLOCK, SOME MAPLE, OAK, BIRCH
FISH	NOT SAMPLED
PHYTOPLANKTON	SPIROGYRA WEBERI, SCENEDESMUS BIJUGA, OOCYSTIS BORGEI, PEDIASTRUM BORYANUM
ZOOPLANKTON	KERATELLA TAUROCEPHALA, CYCLOPOID COPEPODS, CALANOID COPEPODS

	COLOUR_AP REL UNITS	SP_COND USIE/CM	DOC MG/L	N_DIS_NO3 MG/L	N_TOT MG/L	ALK_GRAN MG/L	PH PH UNITS	NA_DIS MG/L	MG_DIS MG/L	AL_EXT MG/L	SO4_DIS MG/L	CL_DIS MG/L	K_DIS MG/L	CA_DIS MG/L	MN_EXT MG/L	FE_EXT MG/L
28-May-83	70	29	7.5	L 0.0100	0.1	-0.9	4.7	2.8	0.37	0.24	2.3	3.9	0.2	0.4	L 0.0100	0.14
18-Oct-83	30	26	5.8	L 0.0100	0.09	-0.3	5	3	0.35	0.15	2.5	4.1	0.2	0.31	0.01	0.13
2-May-84	60	30	7.5	L 0.0100	0.06	-1	4.5	2.8	0.38	0.21	2.5	4	0.2	0.38	0.01	0.11
17-Oct-84	65	27	7.7	L 0.0100	L 0.1000	-0.4	4.9	2.8	0.38	0.22	2.3	4.4	0.27	0.38	0.02	0.19
3-Jun-85	50	32	7	L 0.0100	L 0.1000	-0.8	4.7	3.1	0.35	0.28	2.8	4.5	0.32	0.4	0.01	0.14
22-Oct-85	40	29	5.1	L 0.0100	L 0.1000	-0.5	5	3.1	0.42	0.15	3	4.8	0.27	0.41	0.012	0.12
27-May-86	55	29	6.1	L 0.0100	0.12	-0.5	4.8	2.7	0.4	0.21	2.4	4.5	0.25	0.4	0.02	0.15
21-Oct-86	70	28	8.4	L 0.0100	0.12	-0.2	4.9	2.8	0.41	0.25	2.3	4.4	0.27	0.41	0.01	0.24
20-May-87	75	28	5.2	L 0.0100	L 0.1000	-0.6	4.8	2.7	0.37	0.23	2.4	4.4	0.24	0.38	0.01	0.2
8-Oct-87	25	29	4.5	L 0.0100	L 0.1000	-0.5	4.9	2.8	0.4	0.19	2.8	4.3	0.33	0.41	0.01	0.11
21-May-88	60	27	5.9	L 0.0100	L 0.1000	-0.2	4.8	2.7	0.38	0.2	2.7	3.9	0.21	0.4	L 0.0100	0.15
23-Nov-88	70	28	7.2	L 0.0100	0.1	-0.4	4.7	2.4	0.45	0.25	2.6	3.9	0.22	0.46	0.01	0.19
24-May-89	60	26	4.7	0.01	L 0.1000	0.1	4.8	2.5	0.38	0.18	2.4	3.3	0.33	0.39	L 0.0100	0.14
24-Oct-89	25	27	3.2	L 0.0100	0.14	-0.1	5.1	2.8	0.38	0.14	3	3.9	0.26	0.4	0.01	0.08
5-Jun-90	50	27.8	5.7	L 0.0100	0.11	-0.6	4.8	3	0.35	0.2	2.6	3.3	0.24	0.39	L 0.0100	0.11
30-Oct-90	40	27	4.5	L 0.0500	0.24	0.1	5.1	2.7	0.36	0.2	2.8	3.7	0.25	0.33	0.01	0.18
30-Oct-90	40	27	4.4	L 0.0500	0.14	0.1	5.1	2.8	0.36	0.19	2.8	3.7	0.25	0.34	0.01	0.18
30-Oct-90	40	27	4.9	L 0.0500	0.14	0.1	5	2.8	0.36	0.2	2.8	3.7	0.26	0.35	0.01	0.17
3-Jun-92	55	25	4.9	L 0.0100	0.11	-0.5	4.9	2.5	0.5	0.23	1.9	4.1	0.23	0.41	0.01	0.15
22-Oct-92	10	24	2.5	L 0.0100	0.16	-0.5	5.1	2.9	0.34	0.12	2.4	4	0.28	0.35	0.04	0.08
5-Jul-93	50	24.8	4.7	L 0.0100	0.15	-0.5	4.9	2.8	0.33	0.22	2.3	3.9	0.25	0.36	0.01	0.14
19-Oct-93	20	24	4.4	L 0.0200	0.1	-0.5	5	3	0.37	0.16	2.7	4.1	0.27	0.35	0.01	0.09
3-Nov-94	35	23	4.9	L 0.0200	0.1	-0.6	4.9	2.7	0.34	0.17	2.2	3.8	0.29	0.32	L 0.0100	0.12
24-May-95	55	30	6	L 0.0200	0.05	-0.9	4.7	2.9	0.34	0.24	2.22	4.45	0.27	0.31	0.01	0.13
18-Oct-95	25	28	4.8	L 0.0200	0.05	-0.2	5	3.1	0.349	0.14	2.43	4.45	0.29	0.384	0.01	0.13
3-Jun-96	45	26.4	6.2	L 0.0200	0.06	-1	4.7	2.8	0.32	0.23	2.25	3.84	0.24	0.38	L 0.0100	0.14
16-Oct-96	75	26.3	10.4	L 0.0200	0.13	-0.1	4.7	2.8	0.33	0.29	1.89	3.42	0.22	0.37	L 0.0100	0.21
17-Oct-96	60	27.1	9.9	L 0.0200	0.15	-0.6	4.7	2.8	0.33		1.79	3.58	0.21	0.37		
27-May-97	60	24.6	7.2	L 0.0200	0.08	-0.65	4.7	2.38	0.25	0.202	1.79	3.25	0.27	0.24	L 0.0100	0.13
29-Oct-97	20	23.1	3.1	L 0.0200	0.08	-0.22	5.1	2.47	0.28	0.11	2.15	3.52	0.25	0.28	L 0.0100	0.08
8-May-98	70	25.3	8.3	L 0.0200	0.09	-0.59	4.76	2.23	0.27	0.25	2.19	2.95	0.2	0.27	0.01	0.13
27-Oct-98	65	28.5	[illegible]	L 0.0200	0.12	-0.23	4.79	2.58	0.38	0.28	2.5	3.32	0.38	0.4	0.01	0.18
26-May-99	51	25.2	[illegible]	L 0.0200	0.06	-0.31	4.79	2.63	0.34	0.27	2.29	3.48	0.32	0.38	L 0.0100	0.13

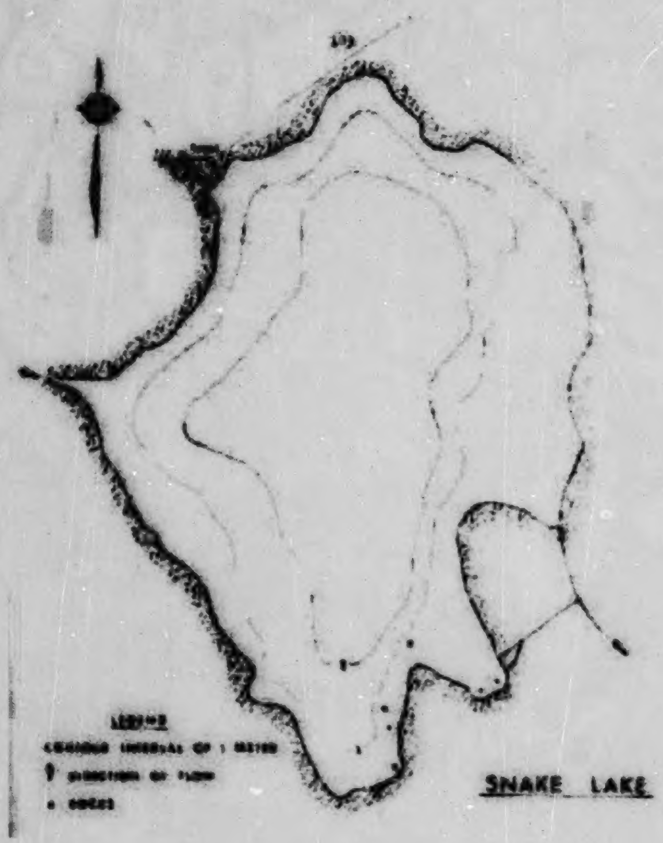
Snake Lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0082	44 21 24	65 12 23

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
90	12.7	1.10	173000	5.40

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.60	0.86	0.30	2.5	1.36

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	BRIDGEWATER SANDY LOAM & PEAT
COVER	SPHAGNUM BOG & GRASSLAND
FISH	PERCA FLAVESCENS, MERONE AMERICANA, FUNDULUS DIAPHANUS, ICTALURUS NEBULOSUS, CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS
PHYTOPLANKTON	APHANOCAPSA DELICATISSIMA, MICROSPORA STAGNORUM
ZOOPLANKTON	SYNCHAETA SP., KERATELLA TAUROCEPHALA, CALANOID COPEPODS


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
ROCKS

SNAKE LAKE

Snake Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	140	24	12	L 0.0100	0.14	-0.6	4.8	2.2	0.4	0.11	0.5	3.2	0.1	0.5	0.04	0.31
18-Oct-83	120	27	12.9	0.02	0.21	0.2	5	2.7	0.5	0.11	1.2	3.9	0.1	0.81	0.06	0.32
03-May-84	80	23	9.5	L 0.0100	0.08	-0.4	4.6	2.3	0.28	0.058	1	3.1	L 0.1000	0.46	0.04	0.16
17-Oct-84	160	30	17	L 0.0100	0.19	0.3	5	2.8	0.61	0.11	1	4.8	0.1	1	0.07	0.39
03-Jun-85	120	26	13	L 0.0100	L 0.1000	-0.6	4.7	2.5	0.3	0.1	1	3.4	L 0.1000	0.65	0.05	0.29
23-Oct-85	130	30	16	L 0.0100	0.13	-0.4	4.8	2.7	0.6	0.14	1.3	4.4	0.1	1	0.086	0.4
28-May-86	140	23	13	L 0.0100	0.18	-0.2	4.8	2.2	0.32	0.11	1	3.2	0.1	0.57	0.06	0.3
21-Oct-86	150	28	21	0.03	0.14	-0.2	4.8	2.4	0.53	0.12	0.8	4.1	0.13	0.86	0.07	0.44
20-May-87	110	22	7.9	L 0.0100	L 0.1000	-0.2	4.9	2.2	0.29	0.075	0.8	3.5	0.13	0.48	0.06	0.26
07-Oct-87	100	28	8	L 0.0100	0.1	-0.1	5	2.7	0.43	0.105	2	4.3	0.17	0.68	0.07	0.24

21-May-88	140	22	11	L 0.0100	L 0.1000	-0.2	4.8	2.2	0.33	0.088	1.1	2.8	L 0.1000	0.51	0.05	0.25
23-Nov-88	120	28	13	L 0.0100	0.12	-0.3	4.7	2.1	0.51	0.095	1.2	3.6	L 0.1000	0.81	0.11	0.33
24-May-89	140	20	8.3	0.01	L 0.1000	-0.1	4.9	2	0.28	0.079	0.94	2.5	0.11	0.46	0.05	0.28
24-Oct-89	140	32	12	L 0.0100	0.36	0.1	4.9	2.7	0.59	0.098	2.2	4.1	0.1	1.1	0.11	0.2
05-Jun-90	110	21.4	9.6	0.03	0.2	-0.1	4.8	2.1	0.27	0.08	0.8	2.9	L 0.1000	0.49	0.05	0.23
30-Oct-90	160	31	13.6	0.07	0.38	0.4	4.9	2.8	0.56	0.13	1.7	4	0.14	0.94	0.11	0.45
31-May-91	150	19	9.4	L 0.0100	0.26	0.2	4.9	2.1	0.26	0.1	0.9	2.4	0.12	0.45	0.06	0.26
17-Oct-91	60	27	8.1	L 0.0100	0.23	0.9	5.2	3	0.46	0.21	2.5	4.7	0.32	0.66	0.04	0.29
03-Jun-92	130	21	7.3	L 0.0100	0.18	0.1	5.1	2.2	0.5	0.093	0.8	3.2	0.11	0.48	0.05	0.26
22-Oct-92	90	23	6.1	0.07	0.31	0.2	5.1	2.5	0.32	0.078	1.9	3.4	0.15	0.57	0.06	0.17
05-Jul-93	120	24.1	13.5	L 0.0100	0.33	0.2	4.8	2.5	0.38	0.16	0.87	3.1	0.11	0.67	0.08	0.43
19-Oct-93	90	25	11.7	L 0.0200	0.37	0.5	5.1	2.9	0.44	0.1	1.9	4	0.11	0.62	0.08	0.23
28-May-94	115	20	13.3	L 0.0200	0.15	-0.6	4.7	1.9	0.23	0.083	0.8	2.2	0.12	0.38	0.06	0.26
03-																

Nov-94	110	29	14.2	L 0.0200	0.18	0.5	4.7	2.9	0.55	0.14	1.5	4.2	0.15	0.9	0.1	0.3
24-May-95	115	25	9.7	L 0.0200	0.08	-0.8	4.7	2.8	0.32	0.098	0.85	3.99	0.1	0.49	0.07	0.25
16-Oct-95	145	27	12.3	0.05	0.17	0.2	5	3	0.426	0.12	1.24	3.98	0.14	0.679	0.07	0.34
03-Jun-96	45	23.4	13.5	L 0.0200	0.12	-0.2	4.7	2.5	0.32	0.12	0.79	3.05	0.11	0.54	0.07	0.33
16-Oct-96	200	31.4	20.7	L 0.0200	0.19	0.2	4.7	2.4	0.48	0.14	0.31	3.37	0.22	0.86	0.12	0.59
27-May-97	120	17.8	10.3	L 0.0200	0.13	0.11	4.9	1.92	0.19	0.067	0.51	2.16	0.15	0.31	0.05	0.23
19-May-98	180	22.6	14.6	L 0.0200	0.17	0.5	4.9	2.25	0.32	0.14	0.89	2.57	0.08	0.46	0.08	0.36
26-Oct-98	155	35.1	19.5	L 0.0200	0.18	-0.4	4.6	2.6	0.63	0.17	2.16	3.74	0.29	1.01	0.14	0.36
26-May-99	141	22.6	12.2	L 0.0200	0.15	0.2	4.9	2.26	0.32	0.13	1.14	2.85	0.11	0.57	0.07	0.29
07-Oct-99	167	34.6	21.6	L 0.0200	0.19	-0.61	4.52	2.69	0.64	0.173	1.47	3.9	0.2	0.97	0.124	0.477
16-May-00	120	26.4	13.1	L 0.0200	0.11	-1.05	4.69	2.55	0.35	0.109	0.78	3.73	0.06	0.56	0.0633	0.275
18-Sep-00	119	28.3	10.1	L 0.0200	0.12	-0.41	4.85	3.08	0.45	0.106	1.52	4.44	0.31	0.53	0.0831	0.27

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:17:46

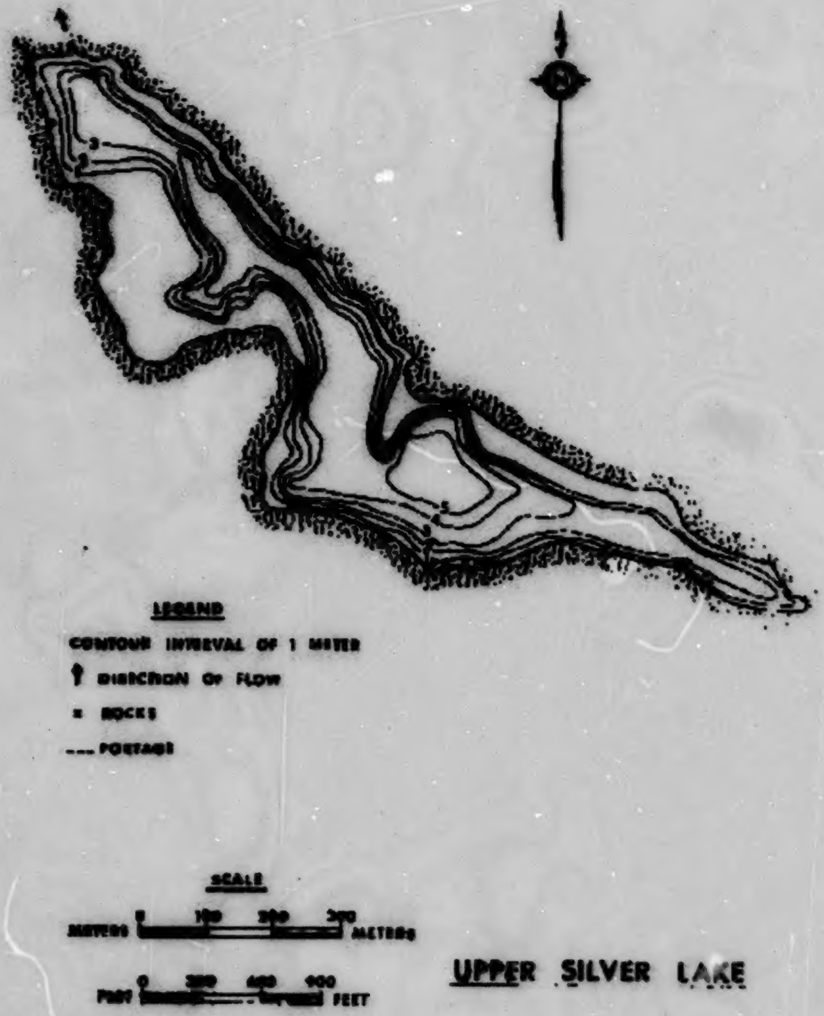
Upper Silver lake

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0095	44 16 59	65 14 48

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
90	24.30	0.90	566000	1.35

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.80	1.00	0.2	5.75	2.33

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX SANDY LOAM
COVER	SPHAGNUM BOG WITH SPRUCE, FIR, PINE, HEMLOCK
FISH	PERCA FLAVESCENS, MERONE AMERICANA, ICTALURUS NEBULOSUS,CATOSTOMUS COMMERSONI, NOTEMIGONUS CRYSOLEUCAS, SALVELINUS FONTINALIS
PHYTOPLANKTON	CHROOCOCCUS DISPERSUS V. MINUS, EUASTRUM SINOSUM, PEDIASTRUM BORYANUM
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA VULGARIS, HOLOPEDIUM GIBBERIUM


LEGEND
CONTOUR INTERVAL OF 1 METER
DIRECTION OF FLOW
x ROCKS
--- PORTAGE
SCALE
0 100 200 300
METERS METERS
0 200 400 900
FEET FEET

UPPER SILVER LAKE

	COLOUR_AP REL UNITS	SP_COND USIE/CM	DOC MG/L	N_DIS_NO3 MG/L	N_TOT MG/L	ALK_GRAN MG/L	PH PH UNITS	NA_DIS MG/L	MG_DIS MG/L	AL_EXT MG/L	SO4_DIS MG/L	CL_DIS MG/L	K_DIS MG/L	CA_DIS MG/L	MN_EXT MG/L	FE_EXT MG/L
26-May-83	L 5.0000	23	3.2	L 0.0100	0.1	0.6	5.8	2.4	0.65	0.07	2.1	3.9	0.2	0.65	L 0.0100	0.015
18-Oct-83	5	23	2.6	0.01	0.11	0.9	5.7	2.7	0.35	0.031	2.4	4.2	0.2	0.63	L 0.0100	0.014
3-May-84	10	22	3.6	0.01	0.08	0.8	5.7	2.6	0.37	0.085	2.1	3.9	0.2	0.63	0.01	0.01
17-Oct-84	L 5.0000	24	2.4	L 0.0100	0.1	0.8	6.1	2.7	0.38	0.036	3	4	0.25	0.63	0.01	0.012
3-Jun-85	L 5.0000	24	3	L 0.0100	0.1	0.7	5.8	2.7	0.38	0.08	2.5	4.1	0.25	0.7	L 0.0100	0.02
23-Oct-85	5	25	2.6	L 0.0100	L 0.1000	0.7	6	2.7	0.4	0.035	2.4	4.1	0.2	0.69	L 0.0100	0.011
28-May-86	5	24	2.9	L 0.0100	0.1	0.8	5.9	2.5	0.4	0.08	2.1	3.9	0.2	0.69	L 0.0100	0.012
21-Oct-86	5	24	2.9	L 0.0100	0.1	0.7	5.9	2.5	0.39	0.051	2.4	4.1	0.2	0.64	L 0.0100	0.017
20-May-87	5	23	1.8	0.02	L 0.1000	0.8	5.7	2.6	0.38	0.085	2.5	4.1	0.19	0.65	0.01	0.013
8-Oct-87	L 5.0000	24	2	L 0.0100	L 0.1000	0.8	5.9	2.6	0.37	0.033	2.6	3.8	0.22	0.6	L 0.0100	0.014
21-May-88	10	22	2.6	L 0.0100	L 0.1000	1.3	5.9	2.4	0.37	0.062	2.8	3.7	0.2	0.66	L 0.0100	0.011
23-Nov-88	5	23	2.8	L 0.0100	0.11	1.2	5.8	2.5	0.37	0.062	2.5	3.9	0.21	0.72	L 0.0100	0.03
24-May-89	5	22	5.6	0.01	L 0.1000	0.9	5.6	2.5	0.35	0.063	2.4	3.6	0.28	0.66	0.01	0.014
24-Oct-89	5	25	2	L 0.0100	0.16	1.1	6	2.6	0.31	0.016	2.8	3.7	0.28	0.65	L 0.0100	0.013
5-Jun-90	5	21.7	2.3	L 0.0100	0.09	0.5	5.7	2.5	0.33	0.06	2.1	3.2	0.22	0.6	L 0.0100	0.017
30-Oct-90	L 5.0000	24	2.4	L 0.0500	0.13	1.1	6.1	2.6	0.34	0.032	2.5	3.4	0.26	0.59	L 0.0100	0.021
31-May-91	10	21	3.1	L 0.0100	0.12	1	5.9	2.4	0.36	0.068	2.3	3.6	0.3	0.61	L 0.0100	0.017
22-Oct-91	5	23	2.7	L 0.0100	0.16	1.1	5.9	2.7	0.4	0.053	2.5	3.6	0.27	0.65	0.01	0.019
3-Jun-92	10	21	2.4	L 0.0100	0.1	0.7	6	2.6	0.53	0.062	2.2	3.9	0.24	0.55	L 0.0100	0.011
22-Oct-92	L 5.0000	22	1.6	L 0.0200	0.14	0.8	6.1	2.7	0.35	0.025	2.6	3.6	0.27	0.72	0.01	0.015
5-Jul-93	5	21.9	2.6	L 0.0100	0.11	1.1	5.9	2.6	0.31	0.056	2.2	3.5	0.26	0.62	0.01	0.015
19-Oct-93	L 5.0000	22	3.2	L 0.0200	0.12	1	6.1	2.7	0.37	0.031	2.2	3.7	0.28	0.61	0.01	0.017
29-May-94	15	21	4.1	L 0.0200	0.1	0.5	5.6	2.3	0.32	0.089	1.6	3.2	0.31	0.58	0.02	0.029
3-Nov-94	10	20	3.2	L 0.0200	0.08	0.9	5.9	2.6	0.35	0.026	2.1	3.7	0.28	0.65	0.01	0.017
24-May-95	10	21	3.2	L 0.0200	0.04	0.6	5.8	2.6	0.32	0.066	2.04	3.88	0.25	0.63	L 0.0100	0.015
16-Oct-95	5	23	3.6	L 0.0200	0.05	1.1	6.1	2.8	0.332	0.027	2.16	3.82	0.31	0.641	L 0.0100	0.017
3-Jun-96	65	21.4	2.6	L 0.0200	0.07	1	5.9	2.6	0.32	0.075	1.94	3.78	0.27	0.64	L 0.0100	0.02
16-Oct-96	15	21.6	4	L 0.0200	0.1	1.1	5.8	2.6	0.32	0.073	1.8	3.49	0.3	0.65	L 0.0100	0.03
27-May-97	15	21.2	3.6	L 0.0200	0.07	0.51	5.7	2.43	0.28	0.07	1.87	3.32	0.28	0.51	L 0.0100	0.03
29-Oct-97	L 5.0000	21.4	2.2	L 0.0200	0.07	0.82	6.1	2.46	0.31	0.022	1.93	3.55	0.34	0.6	L 0.0100	0.02
14-Jun-98	5	21.2	3.7	L 0.0200	0.05	0.97	5.86	2.35	0.31	0.041	1.89	3.23	0.26	0.53	0.01	0.02
21-Oct-98	5	21.2	3.3	L 0.0200	0.08	0.79	5.94	2.42	0.33	0.046	2.08	3.36	0.26	0.6	L 0.0100	0.022

Mount Tom Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0043	44 22 05	65 21 45

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
120	13.96	0.60	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.17	0.74	0.28	0.0	0.0

GEOLOGY	MIDDLE DEVONIAN GRANITIC & ALLIED ROCKS
SOILS	BRIDGEWATER, MIDDLEWOOD SANDY LOAMS, SURFACE PEAT
COVER	PINE, SPRUCE, FIR, HEMLOCK
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION BAVARICUM, APHANOCAPSA DELICATISSIMA, SYNEDRA ACUS, SPIROGYRA FLUVIATILIS, CHLOROCOCCUM LUMICOLA
ZOOPLANKTON	EUBOSMINA LONGISPINA, HOLOPEDIUM GIBBERIUM, CALANOID COPEPODS

Mount Tom Lake

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	100	27	8.8	L 0.0100	0.11	-1.2	4.6	2.2		0.17	1.7	3.5	0.2	0.35	0.01	0.18
18-Oct-83	65	25	6.9	L 0.0100	0.11	-0.7	4.8	2.5	0.3	0.14	2	3.3	0.2	0.25	0.01	0.2
02-May-84	90	27	6.7	L 0.0100	0.09	-1.1	4.5	2.4	0.34	0.14	1.6	3.6	0.2	0.32	0.02	0.14
03-Jun-85	80	29	8.9	L 0.0100	L 0.1000	-1.1	4.6	2.5	0.31	0.2	1.7	3.7	0.25	0.3	0.01	0.25
22-Oct-85		27	7.8	L 0.0100	0.11	-0.5	4.8	2.6	0.35	0.17	1.8	3.8	0.27	0.32	0.017	0.3
27-May-86	100	26	9.2	L 0.0100	0.15	-0.7	4.7	2.3	0.3	0.16	1.6	4	0.24	0.3	0.02	0.24
21-Oct-86	120	27	13	0.03	0.16	-0.8	4.7	2.3	0.35	0.22	1.3	3.6	0.36	0.33	0.01	0.39
21-May-87	100	25	7.3	0.01	L 0.1000	-0.8	4.7	2.3	0.31	0.17	1.4	3.8	0.28	0.29	0.02	0.27
08-Oct-87	65	29	8.3	L 0.0100	L 0.1000	-0.8	4.7	2.4	0.38	0.19	2.1	3.6	0.34	0.34	0.02	0.21
21-May-88	100	23	8	L 0.0100	L 0.1000	-0.4	4.8	2.2	0.3	0.18	1.8	3.4	0.22	0.3	L 0.0100	0.25

23-Nov-88	110	27	11	L 0.0100	0.13	-0.5	4.6	2.3	0.37	0.21	1.6	3.5	0.27	0.37	0.02	0.25
24-May-89	80	24	6	0.01	L 0.1000	-0.5	4.7	2.1	0.28	0.13	1.6	2.8	0.34	0.28	0.02	0.2
24-Oct-89	70	27	5.9	L 0.0100	0.21	-0.5	4.7	2.3	0.41	0.15	2.6	3.4	0.28	0.38	0.02	0.17
05-Jun-90	90	26.2	7.5	0.02	0.16	-0.9	4.6	2.2	0.27	0.14	2.1	2.7	0.24	0.26	L 0.0100	0.16
30-Oct-90	90	27	7	L 0.0500	0.19	-0.3	4.8	2.3	0.33	0.17	2	3.3	0.3	0.25	0.02	0.26
31-May-91	95	23	5.9	0.01	0.2	-1	4.6	2.2	0.26	0.15	1.6	2.9	0.27	0.24	0.02	0.19
03-Jun-92	80	22	6.3	L 0.0100	0.13	-0.2	4.9	2.2	0.47	0.15	1.4	3.3	0.25	0.26	0.01	0.19
22-Oct-92	30	22	4.1	L 0.0200	0.17	-0.3	4.9	2.4	0.27	0.12	1.9	3.3	0.25	0.23	0.02	0.16
05-Jul-93	80	23.2	6	L 0.0100	0.2	-0.5	4.7	2.3	0.29	0.17	1.5	3.1	0.24	0.27	0.01	0.23
19-Oct-93	50	23	7.1	L 0.0200	0.25	-0.7	4.8	2.5	0.33	0.14	1.9	3.3	0.28	0.26	0.02	0.18
03-Nov-94	75	23	8.4	L 0.0200	0.24	-0.8	4.7	2.3	0.31	0.16	1.6	3.3	0.25	0.27	0.01	0.23
25-May-95	75	27	7	L 0.0200	0.06	-1.3	4.6	2.5	0.3	0.15	1.47	3.97	0.24	0.24	0.01	0.16
16-Oct-95	45	26	6	L 0.0200	0.05	-0.5	4.9	2.8	0.321	0.11	1.79	3.88	0.24	0.237	0.02	0.13
03-																

Jun-96	25	25.1	8	L 0.0200	0.09	-1.1	4.6	2.4	0.28	0.17	1.55	3.39	0.21	0.32	0.01	0.18
16-Oct-96	140	27.3	14.4	L 0.0200	0.16	-0.6	4.5	2.4	0.31	0.25	1.12	2.89	0.25	0.35	0.01	0.38
05-May-98	85	22.5	8.5	L 0.0200	0.22	0.17	4.93	2.04	0.25	0.17	1.67	2.74	0.31	0.24	0.01	0.17
27-Oct-98	260	43.8	32.4	L 0.0200	0.29	-3.11	4.17	2.38	0.43	0.41	1.04	2.83	0.58	0.38	0.01	0.39
26-May-99	69	22.5	7.9	L 0.0200	0.07	-0.34	4.71	2.04	0.28	0.16	1.58	2.82	0.22	0.22	0.01	0.19
07-Oct-99	98	29.7	13.4	L 0.0200	0.13	-1.19	4.44	2.42	0.37	0.241	1.86	3.26	0.27	0.26	0.0139	0.277
16-May-00	84	29.1	9.7	L 0.0200	0.08	-1.56	4.56	2.37	0.31	0.179	1.49	3.64	0.17	0.32	0.0101	0.188
18-Sep-00	44	25.4	4.7	L 0.0200	0.05	-0.9	4.79	2.61	0.33	0.113	1.9	4.04	0.25	0.25	0.0139	0.15

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:50:37

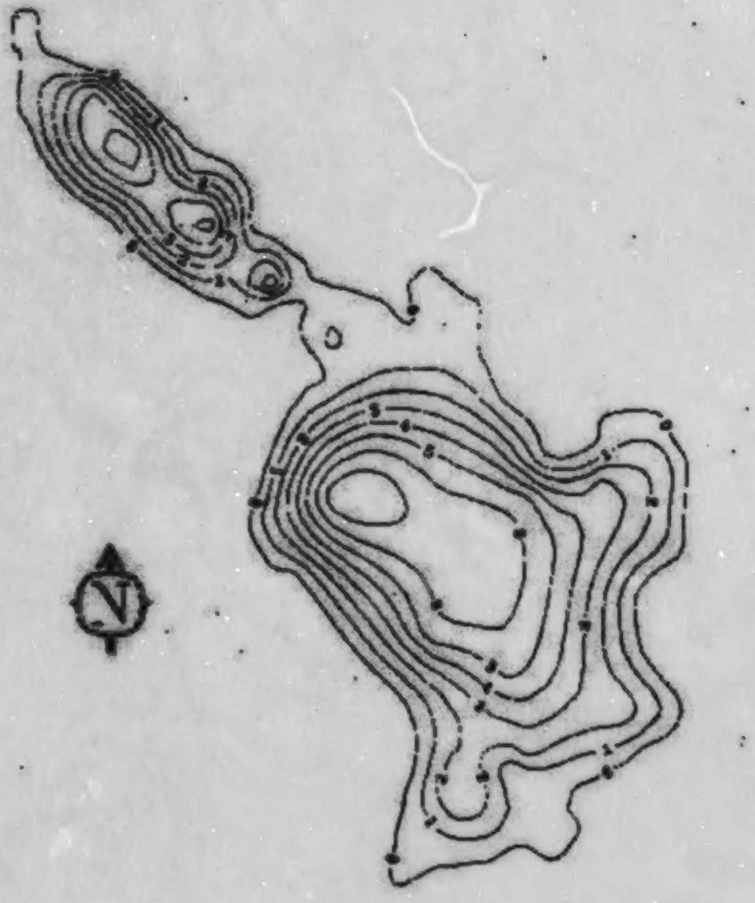
Little Tupper Lake

Drainage Basin	Station Number	Latitude	Longitude
Medway	NS01EE0006	44 25 00	64 58 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
107	117.82	5.93	3198090	1.67

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
7.48	2.4	1.15	7.84	2.72

GEOLOGY	**PRECAMBRIAN SLATE**
SOILS	**BRIDGEWATER & BRIDGEWATER DRUMLIN SANDY LOAMS, SOME SWAMP**
COVER	**PINE, HEMLOCK. DRUMLINS LARGELY CULTIVATED. SWAMPS WITH BLACK SPRUCE, TAMARACK, POPLAR, FIR, SEDGES, REEDS, CATTAILS**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**NOT SAMPLED**



LITTLE TUPPER

Scale 1 cm. = 110 meters

1 meter contours

Little Tupper Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
21-Oct-86	5	26	2.7	L 0.0100	L 0.1000	1.4	6.1	2.4	0.56	0.022	2.6	4.1	0.34	0.83	0.02	0.12
20-May-87	5	25	1.9	L 0.0100	L 0.1000	1.5	6.2	2.5	0.51	0.024	2.7	4.1	0.3	0.85	L 0.0100	0.07
07-Oct-87	L 5.0000	25	1.8	L 0.0100	L 0.1000	1.6	6.2	2.5	0.57	0.019	2.4	3.7	0.32	0.78	0.01	0.08
21-May-88	5	24	2.3	L 0.0100	L 0.1000	1.5	6.2	2.4	0.51	0.023	2.4	3.7	0.31	0.85	L 0.0100	0.032
22-Nov-88	5	24	3.5	L 0.0100	0.11	1.8	6	2.4	0.52	0.042	1.9	3.8	0.31	0.78	0.02	0.09
24-May-89	5	23	2.7	0.01	0.15		6.1	2.3	0.49	0.026	2.3	3.1	0.25	0.77	0.01	0.05
24-Oct-89	5	25	1.4	L 0.0100	0.18	1.4	6.2	2.4	0.47	0.016	2.8	3.8	0.2	0.75	0.01	0.07
05-Jun-90	L 5.0000	23.5	1.7	0.01	0.11	1.3	6.1	2.3	0.49	0.02	2.3	3.1	0.25	0.79	L 0.0100	0.05
30-Oct-90	L 5.0000	25	1.7	L 0.0500	0.1	1.5	6.4	2.5	0.51	0.017	2.9	3.5	0.33	0.62	0.02	0.06
31-May-91	10	22	2.1	L 0.0100	0.09	1.4	6.1	2.4	0.48	0.024	3	3.6	0.26	0.72	0.02	0.05

29-Oct-91	20	25	2.4	L 0.0100	0.14	1.2	6	2.7	0.53	0.21	3.4	4.6	0.4	0.75	0.17	0.87
03-Jun-92	10	22	1.9	L 0.0100	0.08	1.5	6.2	2.4	0.53	0.03	2.5	3.6	0.28	0.82	0.02	0.037
20-Oct-92	L 5.0000	25	1.8	L 0.0200	0.13	1.1	6.2	2.6	0.5	0.027	2.7	3.5	0.32	0.65	L 0.0100	0.05
05-Jul-93	5	23.3	1.7	L 0.0100	0.11	1.2	6.2	2.5	0.56	0.027	2.7	3.8	0.25	0.9	0.01	0.039
19-Oct-93	L 5.0000	22	2.1	L 0.0200	0.15	1.4	6.3	2.8	0.53	0.019	2.7	3.9	0.31	1	0.02	0.05
20-Oct-93	20	26	5.9	L 0.0200	0.2	1	5.7	3.3	0.43	0.067	2.5	5	0.37	0.93	0.05	0.23
27-May-94	10	26	3.6	L 0.0200	0.09	2.6	6.2	2.6	0.55	0.046	2.4	3	0.35	1.01	0.06	0.23
04-Nov-94	5	22	2.4	L 0.0200	0.06	1.2	6.2	2.6	0.51	0.01	2.7	3.9	0.3	0.71	0.02	0.047
24-May-95	5	24	2.5	L 0.0200	0.06	0.9	5.9	2.7	0.47	0.053	2.67	3.81	0.27	0.76	0.04	0.07
17-Oct-95	5	24	3.5	L 0.0200	0.05	1.4	6.2	2.8	0.534	0.02	2.59	3.83	0.31	0.677	0.02	0.06
18-Oct-96	15	24.3	3.2	L 0.0200	0.08	1.7	6.2	2.7	0.5	0.039	2.05	3.57	0.26	0.62	0.03	0.12
29-May-97	10	22.3	2.6	L 0.0200	0.07	1.4	6.2	2.49	0.44	0.029	1.81	3.56	0.25	0.71	0.01	0.06
31-Oct-97	L 5.0000	24.2	2.1	L 0.0200	0.07	1.4	6.1	2.64	0.49	0.014	2	3.64	0.25	0.61	0.01	0.06

15-May-98	10	23.9	2.5	L 0.0200	0.07	1.79	6	2.39	0.46	0.024	2.27	3.55	0.22	0.7	0.01	0.05
21-Oct-98	10	26.3	2.5	L 0.0200	0.07	1.7	6.26	2.8	0.54	0.033	2.48	4.09	0.32	0.73	0.02	0.1
27-May-99	13	23.3	2.6	L 0.0200	0.07	1.32	6.13	2.57	0.48	0.028	2.27	3.42	0.26	0.73	0.01	0.04
08-Oct-99	8	25	3.6	L 0.0200	0.07	1.26	5.56	2.82	0.5	0.028	2.54	3.99	0.31	0.63	0.0278	0.069
15-May-00	13	25.7	2.7	L 0.0200	0.04	0.46	6.01	2.71	0.52	0.0352	2.39	4.07	0.22	0.77	0.0119	L 0.0500
19-Sep-00	L 5.0000	25.3	1.7	L 0.0200	0.06	0.81	6.22	2.95	0.54	0.0228	2.51	4.22	0.27	0.66	0.0253	L 0.0500

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:21:53

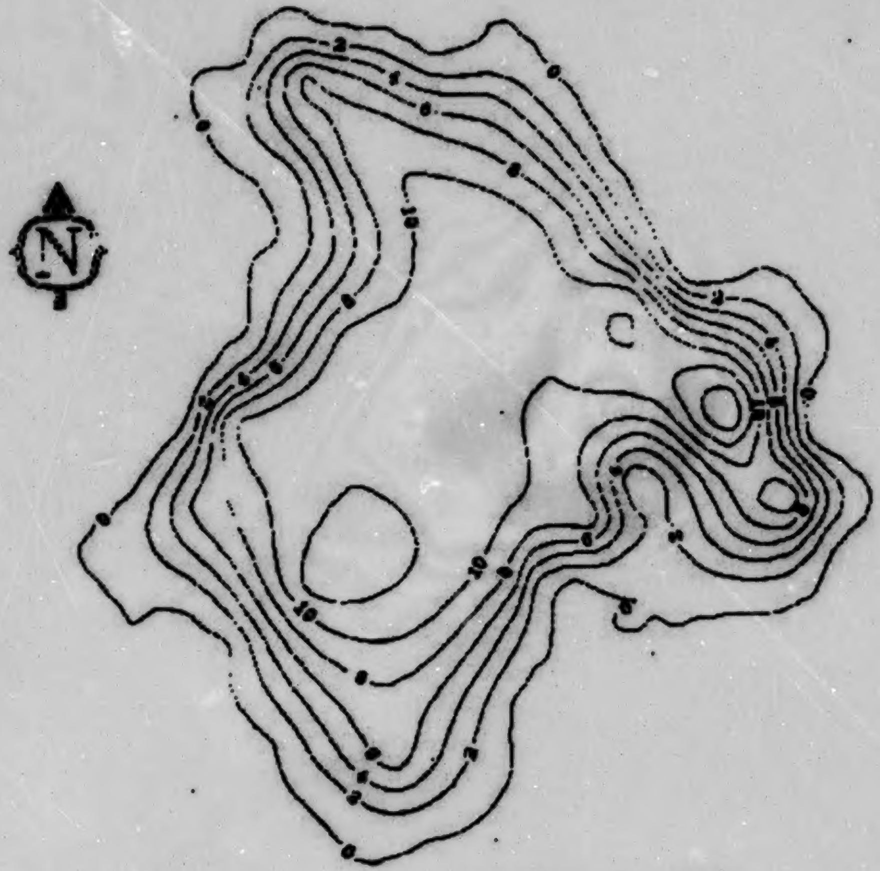
Annis Lake

Drainage Basin	Station Number	Latitude	Longitude
Medway	NS01EE0061	44 19 59	64 49 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
76	86.99	2.15	5624110	0.36

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
76	1.22	1.07	15.71	6.47

GEOLOGY	PRECAMBRIAN QUARTZITE
SOILS	HALIFAX & HALIFAX DRUMLIN SANDY LOAMS
COVER	SPRUCE, PINE, RED OAK, RED MAPLE, WIRE BIRCH, HEMLOCK
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED



ANNIS LAKE

SCALE 1 cm. = 100 meters

2 meter contours

Annis Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Jun-90	L 5.0000	28.3	1	0.01	0.08	2.3	6.5	2.7	0.63	L 0.0100	2.5	4	0.22	1.3	L 0.0100	0.01
30-Oct-90	L 5.0000	31	1.1	L 0.0500	0.08	2.8	6.5	2.7	0.62	L 0.0100	3.1	4.3	0.27	1.3	0.04	0.08
31-May-91	L 5.0000	27	1.6	L 0.0100	0.06	2.7	6.5	2.6	0.6	L 0.0100	3	4.6	0.25	1.3	L 0.0100	0.009
29-Oct-91	L 5.0000	29	1.4	L 0.0100	0.08	2.6	6.6	2.8	0.64	L 0.0100	3.7	4.1	0.29	1.3	0.02	0.032
03-Jun-92	20	27	1.2	L 0.0100	0.06	2.3	6.6	2.7	0.65	L 0.0100	1.5	4.7	0.29	1.4	L 0.0100	0.007
20-Oct-92	L 5.0000	30	1.4	L 0.0200	0.12	2.2	6.5	2.7	0.62	L 0.0100	2.9	4.5	0.31	1.2	0.02	0.012
19-Oct-93	L 5.0000	27	2.1	L 0.0200	0.15	2.3	6.6	2.9	0.65	L 0.0100	2.8	4.8	0.37	1.8	0.01	0.021
27-May-94	L 5.0000	29	2.1	L 0.0230	0.06	2.4	6.5	2.6	0.61	0.026	2.9	4.7	0.29	1.43	0.02	0.038
04-Nov-94	5	26	1.9	L 0.0200	0.05	2.3	6.5	2.7	0.64	L 0.0100	2.7	4.6	0.28	1.4	0.01	0.042
17-Oct-95	L 5.0000	28	2.7	L 0.0200	0.04	2.4	6.5	2.7	0.651	L 0.0100	2.7	4.38	0.3	1.31	0.01	0.018

18-Oct-96	L 5.0000	29.4	1.5	L 0.0200	0.07	2.8	6.7	2.7	0.65	L 0.0100	2.49	4.63	0.28	1.27	0.04	0.09
29-May-97	5	28	1.5	L 0.0200	0.17	2.5	6.6	2.61	0.61	L 0.0100	2.13	4.48	0.28	1.32	L 0.0100	0.012
31-Oct-97	L 5.0000	29.6	1.5	L 0.0200	0.05	2.8	6.5	2.7	0.63	L 0.0100	2.33	4.48	0.24	1.37	0.02	0.07
15-May-98	5	28.6	1.7	L 0.0200	0.06	2.95	6.4	2.5	0.61	0.012	2.34	4.24	0.31	1.39	L 0.0100	0.014
21-Oct-98	L 5.0000	26.6	1.4	L 0.0200	0.05	2.73	6.63	2.54	0.64	L 0.1000	2.63	4.52	0.23	1.4	0.02	0.04
27-May-99	L 5.0000	28.2	1.6	L 0.0200	0.06	2.7	6.5	2.58	0.62	L 0.0100	2.33	3.93	0.25	1.43	L 0.0100	L 0.0200
08-Oct-99	L 5.0000	28.9	1.6	L 0.0200	0.05	2.96	6.6	2.7	0.62	0.00529	2.63	4.56	0.27	1.48	0.0125	L 0.0500
15-May-00	L 5.0000	29.1	1.6	L 0.0200	0.05	2.47	6.72	2.67	0.65	0.00609	2.55	4.38	0.25	1.44	0.00358	L 0.0500
19-Sep-00	L 5.0000	29	1.3	L 0.0200	0.04	3.19	6.65	2.76	0.65	0.00243	2.57	4.44	0.27	1.52	0.00715	L 0.0500

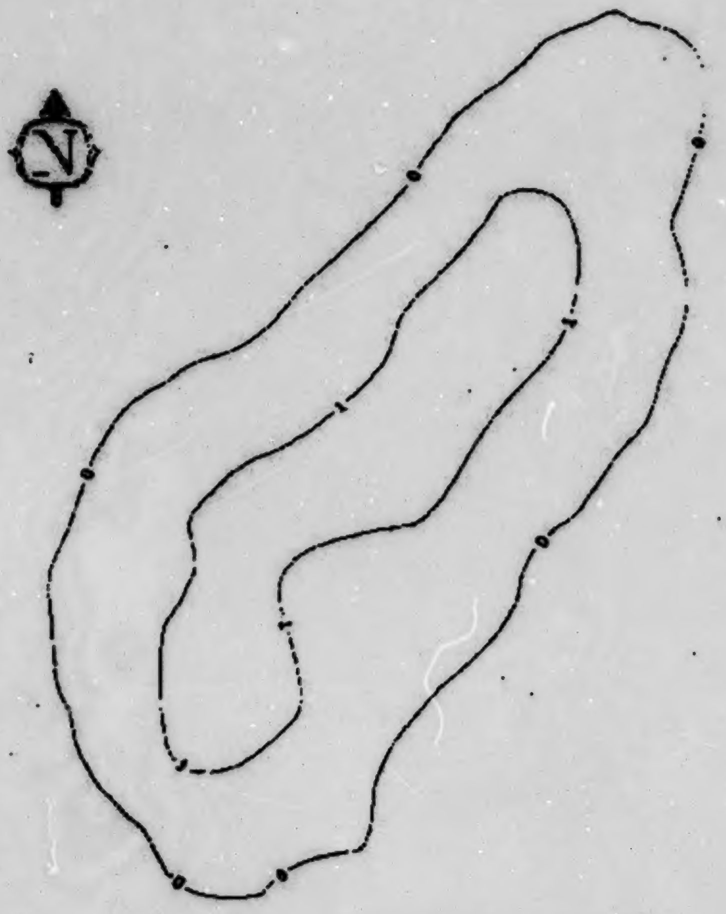
Huey Lake

Drainage Basin	Station Number	Latitude	Longitude
LaHave River	NS01EE0028	44 22 59	64 43 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
107	13.28	2.62	87510	29.94

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.64	0.65	0.32	1.26	0.66

GEOLOGY	PRECAMBRIAN SLATE
SOILS	BRIDGEWATER & BRIDGEWATER DRUMLIN SANDY LOAMS, SOME ROCK LAND, RIVERPORT SANDY LOAM, SWAMP
COVER	PINE, HEMLOCK. DRUMLINS MOSTLY CULTIVATED. SPRUCE, FIR, POPLAR, TAMARACK ON DRY AREAS OF SWAMP, SEDGES, REEDS, CATTAILS ELSEWHERE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED



HUEY LAKE

SCALE 1 cm. = 40 meters

1 meter contours

Huey Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Jun-90	L 5.0000	22.3	2	0.01	0.09	0.3	5.7	2.6	0.37	0.07	2.8	2.9	0.22	0.7	0.06	0.07
30-Oct-90	5	28	3.1	L 0.0500	0.2	1.2	5.9	2.8	0.48	0.045	3.3	3.6	0.15	0.84	0.04	0.11
31-May-91	15	21	1.9	L 0.0100	0.12	1.2	5.8	2.3	0.35	0.04	3	3.1	0.14	0.66	0.16	0.18
29-Oct-91	20	24	4.2	L 0.0100	0.15	1	5.7	2.6	0.44	0.14	3.1	4.6	0.14	0.85	0.14	0.31
03-Jun-92	10	22	1.3	L 0.0100	0.06	0.4	5.9	2.7	0.37	0.022	2.9	3.9	0.15	0.68	0.1	0.07
20-Oct-92	5	25	2.1	L 0.0200	0.19	1	6	2.9	0.43	0.033	2.7	4	0.14	0.8	0.05	0.12
05-Jul-93	10	21.8	2	L 0.0100	0.11	0.8	5.9	2.6	0.42	L 0.0100	2.7	3.8	0.11	0.7	0.09	0.09
19-Oct-93	5	23	3.2	L 0.0200	0.2	1	6.1	3	0.45	0.017	2.9	4	0.14	0.82	0.03	0.08
27-May-94	10	27	2.9	L 0.0200	0.08	0.4	5.4	3.1	0.33	0.085	3	4	0.13	0.68	0.18	0.12
04-Nov-94	20	23	4.7	L 0.0200	0.1	1.3	5.7	2.9	0.49	0.054	2.6	4	0.2	0.9	0.06	0.12

24-May-95	10	23	2.2	L 0.0200	0.07	0.7	5.8	2.6	0.37	0.06	2.69	3.7	0.13	0.69	0.12	0.12
17-Oct-95	10	24	4.7	L 0.0200	0.06	1.4	6	2.8	0.469	0.025	2.39	3.64	0.14	0.697	0.04	0.11
03-Jun-96	45	21.7	2.3	L 0.0200	0.05	0.5	5.6	2.6	0.36	0.059	2.61	3.68	0.12	0.66	0.06	0.08
18-Oct-96	30	20.6	5.2	L 0.0200	0.1	0.9	5.8	2.3	0.34	0.1	1.53	3.22	0.12	0.68	0.07	0.26
29-May-97	10	20.6	2.6	L 0.0200	0.07	0.76	5.8	2.38	0.3	0.052	1.96	3.21	0.15	0.6	0.06	0.08
31-Oct-97	5	24	3.6	L 0.0200	0.09	1.2	6	2.82	0.38	0.017	2.19	3.77	0.09	0.72	0.02	0.06
15-May-98	10	24.6	2.7	L 0.0200	0.08	0.58	5.5	2.56	0.37	0.042	2.7	3.82	0.12	0.68	0.13	0.08
21-Oct-98	35	27.7	5.4	L 0.0200	0.1	0.56	5.58	2.76	0.49	0.14	2.94	3.95	0.09	0.99	0.12	0.15
27-May-99	12	23.7	3.6	L 0.0200	0.05	0.87	5.67	2.57	0.39	0.046	2.23	3.54	0.09	0.72	0.15	0.16
08-Oct-99	37	24	6.9	L 0.0200	0.1	1.32	5.8	2.64	0.46	0.0891	1.94	3.88	0.1	0.92	0.126	0.273
15-May-00	13	25.6	3	L 0.0200	0.04	-0.18	5.69	2.89	0.4	0.0583	2.33	4.55	0.08	0.71	0.0605	0.068
19-Sep-00	5	26.2	3.2	L 0.0200	0.09	0.89	6.18	3.23	0.44	0.00968	1.93	4.92	0.08	0.78	0.0544	0.22

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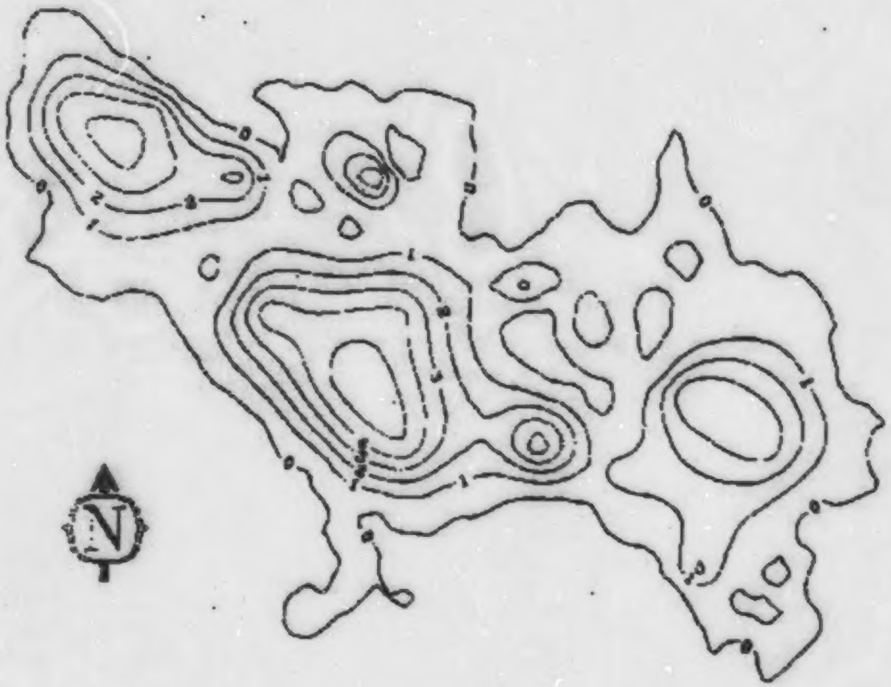
Hirtle Lake

Drainage Basin	Station Number	Latitude	Longitude
LaHave River	NS01EE0030	44 28 00	64 45 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
91	445.75	59.70	6017480	9.92

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
16.87	3.51	1.71	5.57	1.35

GEOLOGY	**PRECAMBRIAN SLATE**
SOILS	**BRIDGEWATER & FARMVILLE SANDY LOAMS, SOME BRIDGEWATER & FARMVILLE DRUMLIN SANDY LOAMS, SWAMP**
COVER	**PINE, HEMLOCK, MAPLE, BIRCH, SPRUCE, POPLAR, OAK, FIR. DRUMLINS MOSTLY CULTIVATED.**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**NOT SAMPLED**



HIRTLE LAKE

SCALE 1 cm. = 250 meters

1 meter contours

Hirtle Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
03-Jun-90	20	25.9	4.9	0.01	0.16	0.9	5.7	2.7	0.51	0.1	2.7	3.5	0.3	1.1	0.03	0.12
30-Oct-90	15	28	3.9	L 0.0500	0.12	1.3	6	2.6	0.53	0.052	3.2	3.6	0.27	1	0.04	0.18
31-May-91	40	23	4.2	L 0.0100	0.12	1.1	5.6	2.3	0.47	0.095	3.21	3.5	0.24	1	0.05	0.12
29-Oct-91	35	27	6	L 0.0100	0.16	1.7	6	2.6	0.58	0.11	3.8	4.5	0.26	1.2	0.09	0.23
03-Jun-92	40	23	4.8	L 0.0100	0.11	0.8	5.8	2.3	0.47	0.1	2.6	3.9	0.25	1.1	0.05	0.1
20-Oct-92	15	25	3.3	L 0.0200	0.11	0.8	6	2.5	0.48	0.05	2.7	3.7	0.26	0.95	0.06	0.21
05-Jul-93	40	23.7	4.5	L 0.0100	0.15	1	5.8	2.5	0.52	0.1	2.5	3.9	0.23	1	0.06	0.12
19-Oct-93	20	23	5	L 0.0200	0.18	1.4	6.1	2.8	0.51	0.059	5.7	3.9	0.26	1.01	0.05	0.22
27-May-94	45	24	6.5	L 0.0200	0.11	0.8	5.6	2.2	0.42	0.14	2.9	4.8	0.19	1.07	0.09	0.23
04-Nov-94	20	22	4.3	L 0.0200	0.08	1.2	6	2.4	0.47	0.035	2.6	3.5	0.22	0.96	0.04	0.15

24-May-95	45	26	5.3	L 0.0200	0.07	0.5	5.6	2.7	0.49	0.095	2.83	4.27	0.23	1.07	0.04	0.12
17-Oct-95	30	26	5.1	L 0.0200	0.05	1.6	6	2.8	0.558	0.065	2.61	3.99	0.23	1.12	0.06	0.25
03-Jun-96	40	26.7	4.6	L 0.0200	0.07	0.8	5.6	2.8	0.51	0.1	2.99	4.23	0.23	1.22	0.05	0.11
18-Oct-96	75	27.3	10	L 0.0200	0.17	1.5	5.6	2.7	0.53	0.18	2.08	3.63	0.24	1.2	0.1	0.43
29-May-97	45	24.1	5	L 0.0200	0.11	0.9	5.8	2.61	0.41	0.098	1.95	3.8	0.32	0.94	0.04	0.15
31-Oct-97	15	26.8	4	L 0.0200	0.08	1.1	6	2.78	0.46	0.045	2.28	3.95	0.25	0.93	0.03	0.18
15-May-98	40	27.6	5.7	L 0.0200	0.08	1.15	5.6	2.71	0.46	0.092	2.67	4.31	0.21	1.07	0.04	0.1
21-Oct-98	40	30.3	6.3	L 0.0200	0.11	1.06	5.84	3.08	0.53	0.094	2.97	4.64	0.22	1.24	0.06	0.23
27-May-99	42	27.8	5.4	L 0.0200	0.06	0.93	5.73	2.96	0.48	0.11	2.4	4.22	0.21	1.03	0.04	0.1
08-Oct-99	45	29.2	7.2	L 0.0200	0.1	1.41	5.78	3.17	0.53	0.0926	2.61	4.81	0.25	1.22	0.105	0.289
15-May-00	46	30.5	6.1	0.02	0.1	0.04	5.67	3.28	0.53	0.105	2.26	5.42	0.2	1.09	0.0319	0.129
19-Sep-00	20	31.4	3.5	L 0.0200	0.06	1.04	6.3	3.54	0.53	0.04	2.22	5.59	0.21	1.11	0.0614	0.14

Last Modified By: clairt
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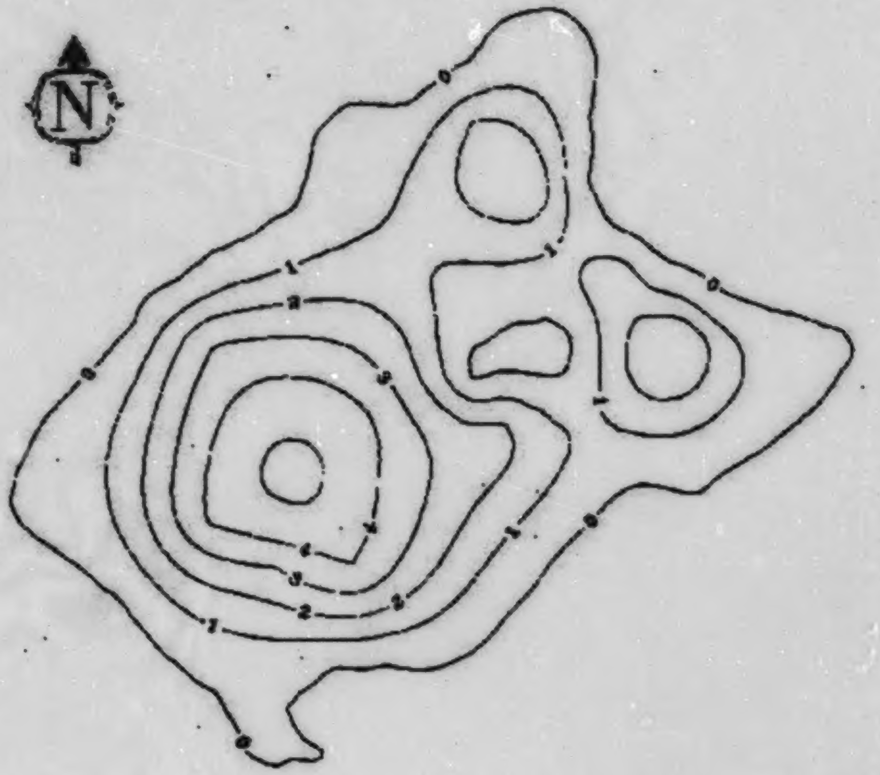
Matthew Lake

Drainage Basin	Station Number	Latitude	Longitude
Into Minamkeak Lake	NS01EE0031	44 19 59	64 40 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
99	16.90	2.59	266235	9.73

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.88	0.75	0.75	5.16	1.57

GEOLOGY	PRECAMBRIAN SLATE
SOILS	BRIDGEWATER & BRIDGEWATER DRUMLIN SANDY LOAMS, SOME SWAMP
COVER	PINE, HEMLOCK. DRUMLINS MOSTLY CULTIVATED. SPRUCE, FIR, POPLAR, TAMARACK ON DRY AREAS OF SWAMP, SEDGES, REEDS, CATTAILS ELSEWHERE
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED



MATHEW LAKE

1 meter contours

SCALE 1 cm = 60 meters

Mathew Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Jun-90	65	41	5.3	0.01	0.19	0.9	5.5	4.3	0.7	0.11	3.7	7.1	0.5	1.2	0.03	0.31
30-Oct-90	60	45	6	L 0.0500	0.2	1.3	5.6	5	0.78	0.1	4.4	7.7	0.6	1.1	0.04	0.67
31-May-91	70	35	5	L 0.0100	0.19	0.9	5.5	4.3	0.62	0.085	4	7	0.57	0.97	0.05	0.27
29-Oct-91	70	39	6.6	L 0.0100	0.21	1.1	5.4	4.5	0.78	0.13	4.5	6	0.55	1.1	0.08	0.53
03-Jun-92	55	36	3.5	L 0.0100	0.1	0.8	5.6	4.6	0.65	0.085	3.4	7.5	0.55	1	0.03	0.29
20-Oct-92	40	40	2.8	0.09	0.18	1	5.8	4.8	0.66	0.074	3.5	7.7	0.58	0.91	0.05	0.67
05-Jul-93	70	38.6	4.9	L 0.0100	0.19	0.9	5.6	4.9	0.71	0.1	3.2	7.8	0.51	1.1	0.06	0.33
19-Oct-93	35	38	5.9	L 0.0200	0.23	1.2	5.8	5.2	1	0.071	3.4	8.6	0.59	1.08	0.04	0.52
27-May-94	50	58	6.7	L 0.0200	0.14	1.7	5.7	7.5	0.75	0.18	4.4	11.5	0.63	1.28	0.11	0.54
04-Nov-94	60	39	7.6	L 0.0200	0.12	1.2	5.5	5.1	0.72	0.092	2.1	8.2	0.52	1.2	0.03	0.48

24-May-95	65	39	5.4	L 0.0200	0.09	0.6	5.4	4.7	0.62	0.13	3.33	7.3	0.48	1.01	0.04	0.35
17-Oct-95	65	39	6.7	L 0.0200	0.08	1.6	5.8	5	0.75	0.096	3.22	7.17	0.52	1	0.04	0.6
03-Jun-96	45	36.6	5.9	L 0.0200	0.06	0.9	5.4	4.9	0.62	0.13	3.24	7.48	0.44	1.02	0.03	0.26
03-Jun-96	45	37	5.4	L 0.0200	0.08	0.8	5.4	4.8	0.63	0.14	3.25	7.48	0.43	1.01	0.03	0.26
18-Oct-96	120	35.9	11.6	L 0.0200	0.17	1.1	5.3	4	0.66	0.17	2.71	5.85	0.46	1.12	0.07	0.76
29-May-97	65	37.1	5.6	L 0.0200	0.11	0.88	5.6	4.7	0.54	0.1	2.39	7.43	0.57	0.85	0.02	0.27
31-Oct-97	45	41.7	4.3	L 0.0200	0.14	1.3	5.8	5.12	0.62	0.081	2.72	7.85	0.55	0.93	0.04	0.72
15-May-98	60	43	6.8	L 0.0200	0.11	1.18	5.8	4.96	0.6	0.1	3.26	8.09	0.5	1.06	0.04	0.32
21-Oct-98	75	45.6	8.5	L 0.0200	0.13	1.1	5.62	5.22	0.73	0.15	3.53	8.05	0.5	1.16	0.07	0.67
27-May-99	24	38.2	4.7	L 0.0200	0.08	1.34	5.89	4.22	0.78	0.079	2.88	6.58	0.69	0.98	0.12	0.34
08-Oct-99	92	44.6	10	L 0.0200	0.13	1.35	5.51	5.42	0.75	0.127	3.17	8.22	0.53	1.21	0.145	1
15-May-00	68	45	7.5	L 0.0200	0.07	0.11	5.56	5.38	0.7	0.116	3.06	8.7	0.41	1.15	0.0341	0.344
19-Sep-00	51	45.3	5.6	L 0.0200	0.08	1.1	5.86	5.67	0.77	0.081	3.06	9	0.44	1.15	0.0565	0.59

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:44:34

Little Wiles Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
West LaHave	NS01EF0016	44 24 00	64 39 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
122	36.33	3.13	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.19	1.06	0.58	0.0	0.0

GEOLOGY	PRECAMBRIAN SLATE
SOILS	BRIDGEWATER & BRIDGEWATER DRUMLIN SANDY LOAMS
COVER	PINE, HEMLOCK. DRUMLINS MOSTLY CULTIVATED
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Little Wiles Lake Chemistry

SDATE	2011	2041	6107	7315	7601	10110	10301	11103	12107	13305	16309	17209	19103	20110	25304	26304
	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_E
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
30-Oct-90	L 5.0000	41	0.7	L 0.0500	0.03	-0.5	4.9	2.5	0.79	0.055	7.5	3.9	0.32	1.4	0.14	0.06
31-May-91	L 5.0000	32	1.4	0.02	0.06	-0.3	5	2.2	0.68	0.093	1.7	5.4	0.27	1.2	0.17	0.05
29-Oct-91	10	36	1.5	L 0.0100	0.05	-0.6	4.9	2.7	0.8	0.23	7.6	4.3	0.35	1.44	0.27	0.88
03-Jun-92	L 5.0000	28	1.2	L 0.0100	0.05	-0.5	5.3	2.2	0.69	0.067	5.8	3.6	0.31	1.1	0.13	0.05
03-Jun-92	L 5.0000	28	1.2	L 0.0100	0.05	-0.7	5.2	2.2	0.59	0.069	5.9	3.8	0.31	1.1	0.13	0.041
03-Jun-92	L 5.0000	29	1.2	L 0.0100	0.04	-0.6	5.1	2.2	0.59	0.072	5.9	3.8	0.32	1.1	0.13	0.038
20-Oct-92	L 5.0000	30	L 0.5000	L 0.0200	0.07	-0.6	5.2	2.4	0.65	0.027	6.1	3.8	0.34	1.1	0.09	0.09
05-Jul-93	L 5.0000	29.1	1.4	L 0.0100	0.07	-0.5	5.1	2.3	0.64	0.51	5.8	3.6	0.22	1	0.12	0.06
19-Oct-93	L 5.0000	27	0.6	L 0.0200	0.11	-0.3	5.5	2.6	0.67	0.02	5.7	3.9	0.3	1.03	0.06	0.09
27-May-94	10	30		L 0.0200	0.13	-0.3	5.2	2.4	0.56	0.09	4.8	3.5	0.27	0.94	0.14	0.16
04-Nov-94	10	27		L 0.0200	0.05	0.7	5.4	2.7	0.63	0.032	4.7	4.2	0.33	0.99	0.07	0.15
24-May-95	5	32		L 0.0200	0.05	0.1	5.3	2.8	0.61	0.094	4.99	4.37	0.31	0.99	0.1	0.07
17-Oct-95	5	29		L 0.0200	0.03	0.5	5.6	2.8	0.648	0.014	4.49	4.3	0.35	0.912	0.1	0.15
03-Jun-96	65	28.9		L 0.0200	0.04	-0.2	5.2	2.6	0.6	0.082	4.76	4.06	0.32	0.99		0.07

18-Oct-96	10	28.2		L 0.0200	0.11	0.4	5.2	2.5	0.57	0.081	3.97	3.66	0.31	0.89		
18-Oct-96	10	29.3		L 0.0200	0.1	-0.1	5	2.5	0.58	0.075	4.32	3.61	0.29	0.92		
18-Oct-96	10	28.1		L 0.0200	0.11	0.4	5.2	2.5	0.58	0.079	4.1	3.65	0.31	0.86		
29-May-97	5	26.9		L 0.0200	0.07	-0.2	5.3	2.38	0.53	0.064	4.12	3.55	0.35	0.84		
29-May-97	5	26.9		L 0.0200	0.06	0.13	5.3	2.32	0.52	0.058	4.16	3.59	0.35	0.83		
31-Oct-97	L 5.0000	28.3		L 0.0200	0.06	0.53	5.9	2.68	0.58	0.018	4.04	3.81	0.32	0.94	0.05	0.14
15-May-98	5	29		L 0.0200	0.06	0.24	5.23	2.48	0.63	0.053	4.88	3.5	0.28	1	0.1	0.06
21-Oct-98	15	29.7		L 0.0200	0.07	-0.37	4.96	2.48	0.64	0.087	5.64	3.78	0.28	1.11	0.1	0.2
27-May-99	6	31.2		L 0.0200	0.04	-0.12	4.97	2.49	0.6	0.08	4.82	3.59	0.23	0.98	0.16	0.16
08-Oct-99	10	31.3	3	L 0.0200	0.05	0.29	5.2	2.73	0.63	0.074	5.03	4.15	0.27	1.02	0.16	0.221
15-May-00	7	31.8	2.1	L 0.0200	0.05	-1.09	5.13	2.82	0.62	0.076	4.55	4.56	0.2	0.98	0.0671	0.066
19-Sep-00	L 5.0000	31.7	1	L 0.0200	0.03	-0.41	5.31	2.96	0.63	0.0207	4.73	4.71	0.23	1.04	0.0531	0.09

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Rocky Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
LaHave River	NS01EF0017	44 28 59	64 43 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
99	85.33	7.25	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
7.39	1.46	0.84	0.0	0.0

GEOLOGY	PRECAMBRIAN SLATE
SOILS	BRIDGEWATER SANDY LOAMS, SOME SMALL AREAS OF FARMVILLE & FARMVILLE DRUMLIN SANDY LOAMS, SWAMP
COVER	PINE, HEMLOCK, SOME MAPLE, BIRCH, SPRUCE, POPLAR, OAK, FIR. DRUMLINS MOSTLY CULTIVATED.
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Rocky Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
05-Jun-90	L 5.0000	21.9	1.5	0.01	0.08	1.5	6.3	2.3	0.46	0.02	3	3.1	0.13	0.93	0.01	0.015
30-Oct-90	L 5.0000	24	1	0.01	0.07	1.2	6.1	2.2	0.43	0.01	3	3.2	0.14	0.83	0.02	0.02
31-May-91	L 5.0000	21	1.7	L 0.0100	0.06	0.9	5.9	2.1	0.44	0.025	3.1	3.1	0.11	0.92	0.03	0.014
29-Oct-91	10	23	2	L 0.0100	0.08	1.2	6	2.2	0.48	0.043	3.8	4.1	0.12	0.93	0.07	0.1
03-Jun-92	10	21	1.5	L 0.0100	0.07	0.8	6.2	2	0.47	0.023	2.9	3.3	0.14	1	0.03	0.009
20-Oct-92	L 5.0000	20	1.4	L 0.0200	0.07	1.4	6.3	2.1	0.44	L 0.0100	3	3.2	0.16	0.84	0.02	0.06
05-Jul-93	5	20.7	1.4	L 0.0100	0.08	0.8	6.1	2.1	0.46	0.02	2.8	3.1	0.13	0.95	0.02	0.014
19-Oct-93	L 5.0000	20	2	L 0.0200	0.14	0.9	6.2	2.3	0.45	0.01	2.8	3.2	0.15	0.83	0.03	0.016
27-May-94	L 5.0000	23	2.4	L 0.0200	0.09	0.1	5.7	2	0.45	0.033	3.6	3	0.19	1.07	0.03	0.017
04-Nov-94	L 5.0000	22	2	L 0.0200	0.06	0.9	6	2.2	0.48	L 0.0100	3.4	3.2	0.14	1.1	0.02	0.047

24-May-95	5	26	2	L 0.0200	L 0.0100	0.1	5.7	2.2	0.54	0.018	5.19	3.23	0.12	1.34	0.04	0.011
17-Oct-95	L 5.0000	27	1.7	L 0.0200	0.04	0.8	6	2.3	0.575	L 0.0100	4.9	3.26	0.16	1.34	0.04	0.025
03-Jun-96	65	31.2	1.6	L 0.0200	0.02	0.4	5.4	2.2	0.62	0.031	6.2	3.4	0.13	1.69	0.06	0.01
18-Oct-96	5	29	2	L 0.0200	0.07	0.6	5.6	2.2	0.58	0.028	5.39	3.2	0.13	1.52	0.05	0.03
29-May-97	5	25.3	1.7	L 0.0200	0.06	0.2	5.8	2.03	0.5	0.034	4.36	2.98	0.15	1.31	0.04	0.02
31-Oct-97	L 5.0000	26.4	1.2	L 0.0200	0.06	0.6	6.1	2.17	0.5	L 0.0100	4.21	3.15	0.13	1.22	0.03	0.02
15-May-98	5	24.5	2.1	L 0.0200	0.06	0.54	5.7	1.87	0.46	0.026	3.92	2.98	0.13	1.17	0.04	0.016
21-Oct-98	5	25.1	1.4	0.03	0.08	0.42	5.93	2.1	0.48	0.017	4.07	3.16	0.12	1.19	0.04	0.02
27-May-99	5	24.1	1.8	L 0.0200	0.04	0.58	5.8	2.1	0.44	0.021	3.57	2.97	0.11	1.09	0.03	L 0.0200
08-Oct-99	5	23.7	1.8	L 0.0200	0.07	0.86	6.04	2.2	0.45	0.0178	3.59	3.45	0.14	1.13	0.0582	L 0.0500
15-May-00	7	24.4	2.1	L 0.0200	0.05	-0.1	6.05	2.18	0.46	0.0276	3.22	3.56	0.1	1.03	0.0265	L 0.0500
19-Sep-00	L 5.0000	25	1.1	L 0.0200	0.04	0.41	6.2	2.38	0.46	0.0105	3.3	3.74	0.15	1.08	0.0353	L 0.0500

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Last Modified On: Tuesday, January 09, 2001 15:05:35

Caesar Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
None	NS01EB0012	43 33 00	65 31 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	44.03	8.44	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.22	1.02	0.79	0.0	0.0

GEOLOGY	PRECAMBRIAN QUARTZITE & SLATE
SOILS	ROSEWAY ORGANIC SANDY LOAMS & PEAT
COVER	STUNTED BLACK SPRUCE, ALDER, TAMARACK. SPHAGNUM MOSS & SEDGES IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Tedford Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01DA002	44 05 59	66 00 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
61	81.56	2.45	1015150	2.29

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.00	1.60	1.00	4.34	1.24

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX & ASPOTOGAN SANDY LOAMS
COVER	RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, BLACK SPRUCE, MAPLE, BIRCH
FISH	NOT SAMPLED
PHYTOPLANKTON	MERISMOPEDIA GLAUCA, GYMNODIUM PALUSTRE, MOUGEOTIA GENUFLEXA
ZOOPLANKTON	CHONOCHILUS HIPPOCREPIS, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, EUBOSMINA LONGISPINA, CALANOID COPEPODS

SDATE	COLOUR_AP REL UNITS	SP_COND USIE/CM	DOC MG/L	NO3/NO2 DI MG/L	N_TOT MG/L	ALK_TOT MG/L	PH	NA_DIS MG/L	MG_DIS MG/L	AL_EXT MG/L	SO4_DIS MG/L	CL_DIS MG/L	K_DIS MG/L	CA_DIS MG/L	MN_EXT MG/L	FE_EXT MG/L
26-May-83	5	43	2.5	L 0.0100	0.1			4.4	0.76	0.055	3.4	7.6	0.4	1.5	0.01	0.027
18-Oct-83	L 5.0000	43	2.8	0.02	0.08	2.8	6.3	4.7	0.86	0.018	3	7.7	0.5	1.3	0.02	0.029
2-May-84	5	42	3.1	0.01	0.08	2	5.9	4.5	0.79	0.056	3.2	8.1	0.4	1.4	0.01	0.03
16-Oct-84	L 5.0000	45	2.4	L 0.0100	0.13	2.2	6	4.7	0.86	0.011	3.2	8.2	0.45	1.4	0.01	0.018
2-Jun-85	L 5.0000	48	3.4	0.01	0.11	1.7	6.5	4.9	1	0.02	3.6	9.6	0.44	1.5	0.01	0.04
22-Oct-85	5	50	3	L 0.0100	L 0.1000	2.2	6.2	5.2	1	L 0.0100	3.5	9.5	0.61	1.5	0.014	0.017
							6.4									
21-Oct-86	5	58	2.4	L 0.0100	0.11	2.1		6.1	1	0.018	3.7	11.4	0.49	1.7	L 0.0100	0.034
20-May-87	5	54	2	0.01	L 0.1000	1.9	6.4	5.9	0.94	0.031	3.4	11.2	0.37	1.6	L 0.0100	0.034
7-Oct-87	L 5.0000	55	2.3	L 0.0100	L 0.1000	2.1	6.3	6.6	1.1	0.022	3.9	11.5	0.48	1.6	0.01	0.03
21-May-88	5	57	2	L 0.0100	L 0.1000	1.9	6.5	6.6	0.98	0.025	4.2	11.8	0.44	1.7	L 0.0100	0.023
22-Nov-88	5	54	2.4	L 0.0100	0.11	2.7	6.3	6.2	0.97	0.048	3.7	11	0.47	1.6	0.01	0.07
24-May-89	5	56	3.1	0.01	0.14	2	6.3	6.9	0.92	0.027	3.5	10.8	0.78	1.6	0.01	0.032
24-Oct-89	5	59	1.3	L 0.0100	0.13	2.2	6.3	6.7	0.9	0.015	4.1	12.5	0.52	1.5	0.01	0.021
5-Jun-90	L 5.0000	58	2.1	L 0.0100	0.1	1.9	6.4	7.1	0.89	0.05	3.7	12.3	0.45	1.6	0.01	0.042
30-Oct-90	L 5.0000	62	3.6	L 0.0500	0.11	2.2	6.2	7.6	1	0.021	4.3	12.4	0.57	1.4	L 0.0100	0.026
31-May-91	10	52	2.1	L 0.0100	0.13	1.9	6.4	6.9	0.86	0.037	4.2	10.7	0.51	1.4	0.02	0.05
3-Jun-92	L 5.0000	56	2.4	L 0.0100	0.09	1.8	6.2	7.2	0.93	0.036	3	13.1	0.49	1.6	0.02	0.026
22-Oct-92	L 5.0000	57	2.3	L 0.0200	0.13	2	6.2	8.2	0.95	L 0.0100	3.6	13.4	0.53	1.4	0.02	0.023
5-Jul-93	5	56	2.3	L 0.0100	0.11	1.8	6.5	7	0.83	0.022	3.3	13.2	0.43	1.4	0.01	0.032
19-Oct-93	L 5.0000	57	2.8	L 0.0200	0.13	2.2	6.3	8	0.97	0.014	3.7	13.8	0.55	1.4	0.01	0.028
							6.5									
3-Nov-94	L 5.0000	51	2.6	L 0.0200	0.08	1.9	6.2	6.6	0.85	0.015	4.3	6.8	0.5	1.2	L 0.0100	0.027
25-May-95	10	57	2.8	L 0.0200	0.07	1	6.2	7.4	0.9	0.035	3.5	12.5	0.46	1.36	0.01	0.023
17-Oct-95	L 5.0000	57	3.3	L 0.0200	0.05	2	6.4	7.6	0.975	0.025	3.36	12.86	0.51	1.17	0.01	0.038
3-Jun-96	45	50.8	2.6	L 0.0200	0.05	1.2	6	6.6	0.78	0.05	3.21	11.3	0.42	1.26	0.01	0.04
30-Oct-96	20	46.1	4.6	L 0.0200	0.09	2.3	6.5	5.6	0.73	0.056	2.66	8.63	0.34	1.12	L 0.0100	0.06
30-May-97	10	40.6	3	L 0.0200	0.09	1.8	6.3	5.04	0.63	0.053	2.38	8.48	0.35	0.98	L 0.0100	0.04
31-Oct-97	L 5.0000	47.9	2	L 0.0200	0.08	2	6.4	5.99	0.78	L 0.0100	3.33	9.24	0.41	1.16	0.01	0.016
12-May-98	10	46.4	3	L 0.0200	0.09	1.98	6	5.29	0.74	0.048	3.53	9.11	0.35	1.22	0.01	0.03
20-Oct-98	10	46.9	3.1	L 0.0200	0.08	1.92	6.15	6	0.82	0.039	3.87	9.85	0.43	1.3	0.01	0.04
26-May-99	8	53.5	2.7	L 0.0200	0.05	1.8	6.26	6.45	0.88	0.036	3.56	10.8	0.42	1.46	0.03	0.04

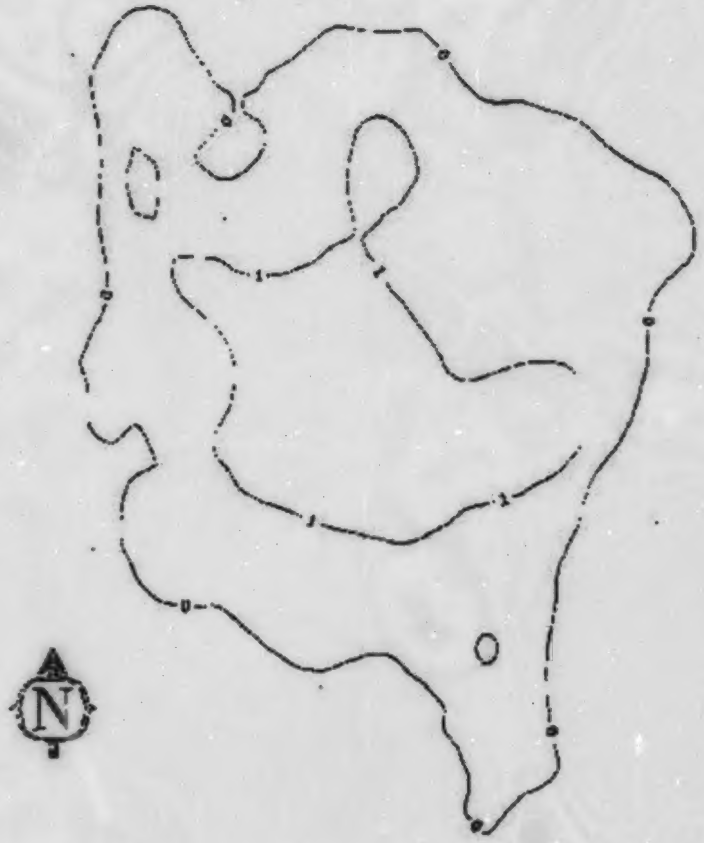
Killam Lake

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01DA0003	44 00 02	66 04 55

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
30	14.82	210.7	99798	168.9

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.0	0.42	0.41	1.51	0.67

GEOLOGY	HALIFAX SLATE, SCHIST, MINOR QUARTZITE
SOILS	BRIDGEWATER, HALIFAX, DEERFIELD SANDY LOAMS
COVER	HEMLOCK, FIR, WHITE & RED SPRUCE, MAPLE, BEECH, BIRCH, POPLAR. LARGE BURNED AREAS WITH FERN, LAMBKILL, BLUEBERRY, BIRCH, MAPLE
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION DIVERGENS, ANACYSTIS AERUGINOSA, FRAGILLARIA CONSTRUENS, ASTERIONELLA FORMOSA, MERIDION CIRCULARE, CLOSTERIDIUM MONILIFERUM, VLOTHRIX ZONATA
ZOOPLANKTON	KERATELLA CRASSA, BOSMINA LONGIROSTRIS, CYCLOPOID NAUPLII, CYCLOPOID COPEPODS



KILLAMS LAKE

SCALE 1 cm. = 40 meters

1 meter contours

Killam Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	PH	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L			MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	10	50	3.7	L 0.0100	0.1	0.5	5.6	5.8	0.88	0.078	4.3	9.8	0.4	1.25	0.02	0.07
18-Oct-83	5	50	3.2	0.01	0.1	1.1	5.8	6	0.92	0.028	3.8	10	0.5	1	0.01	0.07
02-May-84	20	48	4.3	L 0.0100	0.18	0.8	5.5	5.8	0.88	0.08	4	9.9	0.4	1.1	0.02	0.06
16-Oct-84	5	50	2.5	L 0.0100	0.11	0.9	6.2	5.9	0.89	0.014	4	9.8	0.4	1.1	0.01	0.032
02-Jun-85	L 5.0000	55	4	0.01	0.11	0.8	5.7	6.2	1.1	0.06	4.2	11.7	0.41	1.3	0.01	0.06
22-Oct-85	5	53	2.9	L 0.0100	L 0.1000	0.9	6	6.3	0.99	0.021	4	11.1	0.44	1.2	0.012	0.058
27-May-86	5	53	3.2	L 0.0100	0.12	1	5.9	6.3	0.97	0.06	4.05	11	0.44	1.2	0.02	0.06
21-Oct-86	10	53	4.2	0.02	0.12	1.1	6.1	6.2	0.99	0.047	3.9	11.3	0.42	1.3	0.01	0.1
20-May-87	10	51	2.9	0.01	L 0.1000	1	6	5.9	0.94	0.052	4.3	10.8	0.35	1.2	0.01	0.05
07-Oct-87	5	51	3.5	L 0.0100	L 0.1000	1	6.1	6.3	1	0.047	3.7	10.7	0.4	1.2	0.02	0.08
21-May-88	10	51	3.6	L 0.0100	L 0.1000	1.3	6	6	0.95	0.053	4.3	10.6	0.42	1.2	0.01	0.07
22-Nov-88	20	51	4.2	L 0.0100	0.12	1.5	5.9	5.6	0.97	0.068	3.4	10.3	0.44	1.3	L 0.0100	0.12
24-May-89	20	49	3.9	0.01	0.17		5.9	6.1	0.89	0.047	3.6	9.5	0.74	1.1	0.01	0.05
24-Oct-89	5	52	3.3	L 0.0100	0.16	1.5	6.1	6.1	0.96	0.017	4	10.7	0.51	1.2	0.01	0.05
05-Jun-90	15	49.3	3.4	L 0.0100	0.13	0.7	5.7	5.9	0.87	0.07	3.5	10	0.43	1.1	0.03	0.1
30-Oct-90	50	75	4.8	L 0.0500	0.29	3.7	6.2	9.2	1.3	0.1	4.8	13.9	0.49	2.1	L 0.0100	0.18
31-May-91	15	46	2.7	L 0.0100	0.16	1.1	5.9	5.9	0.89	0.051	4.1	9.6	0.49	1	0.02	0.1
03-Jun-92	15	47	3.1	L 0.0100	0.09	1.2	6	6	0.87	0.05	3.2	10.4	0.46	1.1	0.02	0.044
22-Oct-92	L 5.0000	48	1.7	0.02	0.13	1.4	6.3	6.5	0.9	0.013	3.8	10.4	0.48	1	0.02	0.039
05-Jul-93	15	46	3	L 0.0100	0.15	1.1	5.9	5.9	0.92	0.049	3.7	10.3	0.43	1.1	0.02	0.11
19-Oct-93	5	49	3.7	L 0.0200	0.14	1.2	6.2	5.7	0.97	0.028	4	10.7	0.48	1.1	0.01	0.05
03-Nov-94	10	48	3.2	L 0.0200	0.09	1	5.9	6	0.94	0.028	3.7	10.3	0.47	1	L 0.0100	0.06
17-Oct-95	15	49	4.3	L 0.0200	0.07	1.3	6.2	6.3	0.928	0.012	3.24	10.17	0.47	1.03	0.01	0.07
03-Jun-96	30	45.4	3.8	L 0.0200	0.05	0.8	5.7	5.9	0.85	0.072	3.39	9.95	0.43	1.06	0.01	0.06
30-Oct-96	35	44.6	3.9	L 0.0200	0.08	1.2	6	5.4	0.81	0.09	2.71	8.58	0.36	0.95	0.01	0.13

30-May-97	25	41.2	4.4	L 0.0200	0.11	1.1	5.9	5.29	0.74	0.08	2.48	8.5	0.44	0.84	L 0.0100	0.07
31-Oct-97	L 5.0000	44.7	2.8	L 0.0200	0.06	1.1	6.2	5.53	0.8	0.018	2.61	8.97	0.41	0.9	L 0.0100	0.05
12-May-98	15	43.4	4.3	L 0.0200	0.11	1.3	5.7	5.05	0.79	0.071	3.09	8.54	0.44	0.96	0.02	0.07
19-Oct-98	20	47.3	4.1	0.03	0.17	1.36	6.11	5.59	0.88	0.067	3.63	9.55	0.43	1.07	0.01	0.1
26-May-99	15	46.5	3.9	L 0.0200	0.07	1.15	6.02	5.55	0.87	0.061	3.24	9.15	0.4	1.01	0.02	0.09
07-Oct-99	14	48.8	4.4	0.02	0.12	1.69	6.23	6.11	0.92	0.0484	3.41	10.2	0.45	1.06	0.0127	0.074
16-May-00	14	49.2	4.5	L 0.0200	0.07	0.25	5.95	5.77	0.9	0.0668	3.12	9.99	0.36	1.06	0.00788	L 0.0500
18-Sep-00	8	49.9	2.4	L 0.0200	0.05	0.95	6.26	6.17	0.93	0.0148	3.23	10.3	0.43	1.01	0.0102	L 0.0500

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:07:56

Cedar Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01DA0004	44 01 35	66 06 37

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	100.00	169.9	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
9.0	2.0	1.2	0.0	0.0

GEOLOGY	HALIFAX SLATE, SCHIST, MINOR QUARTZITE
SOILS	HALIFAX, ASPOTOGAN, DEERFIELD, PITMAN SANDY LOAMS. SMALL AREAS OF PEAT
COVER	LARGE BURNED AREAS WITH FERN, LAMBKILL, BLUEBERRY, BIRCH, MAPLE. BLACK SPRUCE, TAMARACK, SPHAGNUM, SEDGES IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	TRIBONEMA MINUS, GOMPHONEMA ACUMINATUM V. CORONATUM, PEDIASTRUM TETRAS, GONIUM PECTORALE
ZOOPLANKTON	KERATELLA CRASSA, BOSMINA LONGIROSTRIS, CYCLOPOID NAUPLII, TROPOCYCLOPS PRASINUS V. MEXICANUS, CYCLOPOID COPEPODS

Cedar Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L		MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	30	60	6.7	0.01	0.12		6.1	1.1	0.11	4.8	11.1	0.4	1.75	0.02	0.08
18-Oct-83	5	62	5.6	0.01	0.13	2.9	6	1.2	0.025	4.5	11.1	0.6	1.7	0.02	0.03
02-May-84	30	60	5.9	0.01	0.07	1.5	5.8	1.2	0.11	4.8	12	0.4	1.7	0.02	0.06
16-Oct-84	10	61	5	L 0.0100	0.12	2.6	6.5	1.2	0.02	4.4	11.1	0.45	1.7	0.03	0.027
02-Jun-85	10	68	6.1	0.03	0.14	1.9	6.3	1.4	0.08	5	14.3	0.56	1.3	0.03	0.044
22-Oct-85	5	69	5	L 0.0100	L 0.1000	2.5	6.5	1.5	0.015	5.2	14.1	0.58	1.9	0.02	0.028
27-May-86	10	67	5.2	0.02	0.14	1.7	6.3	1.4	0.06	4.75	13.8	0.58	1.9	0.03	0.034
21-Oct-86	15	67	6.6	L 0.0100	0.12	2.6	6.5	1.4	0.042	4.6	13.7	0.52	1.9	0.02	0.05
20-May-87	30	61	4.8	0.01	L 0.1000	2	6.2	1.2	0.082	4.6	12.5	0.47	1.7	0.03	0.06
07-Oct-87	10	62	5.6	L 0.0100	L 0.1000	2.7	6.4	1.3	0.044	3.8	13.3	0.54	1.8	0.03	0.08
21-May-88	20	61	5.3	L 0.0100	L 0.1000	2.1	6.2	1.2	0.08	4.5	12	0.54	1.7	0.02	0.05
22-Nov-88	25	62	6.8	L 0.0100	0.13	3.1	6.2	1.3	0.07	4	11.9	0.63	1.8	0.01	0.09
24-May-89	30	59	5.4	0.01	0.22	2.3	6.3	1.2	0.072	4.1	11.2	0.95	1.7	0.03	0.06
24-Oct-89	10	62	3.8	L 0.0100	0.21	3.1	6.4	1.3	0.015	4.5	12.3	0.61	1.8	0.02	0.042
13-Aug-															

90	20	60	4.6	0.02	0.2	3.3	6.4	1.1	0.035	4.7	11.8	0.56	1.7	0.06	0.022	
30-Oct-90	5	66	4.1	L 0.0500	0.14	3.3	6.5	1.3	0.027	4.8	12.2	0.6	1.7	0.02	0.06	
31-May-91	25	57	4.2	0.01	0.16	2.1	6.2	1.2	0.089	5.3	10.6	0.59	1.6	0.04	0.11	
03-Jun-92	25	57	4.5	0.03	0.13	2.4	6.2	1.2	0.083	3.6	12	0.58	1.7	0.04	0.044	
22-Oct-92	L 5.0000	59	3	L 0.0200	0.15	3	6.6	1.2	0.016	4.4	12.4	0.63	1.7	0.02	0.039	
05-Jul-93	15	57.5	4.2	L 0.0100	0.17	2.3	6.4	1.2	0.05	4.1	12.6	0.56	1.7	0.02	0.052	
19-Oct-93	5	60	4.4	L 0.0200	0.14	2.8	6.6	1.3	0.024	4.3	13.2	0.63	1.7	0.02	0.028	
03-Nov-94	10	54	4.5	L 0.0200	0.09	2.8	6.4	1.1	0.025	4.2	11.1	0.56	1.6	0.02	0.049	
25-May-95	25	63	5.3	L 0.0200	0.09	1.8	6.2	1.23	0.08	4.4	13.1	0.56	1.73	0.02	0.042	
17-Oct-95	25	62	6.3	L 0.0200	0.08	2.6	6.4	1.31	0.053	3.88	13.1	0.6	1.74	0.03	0.08	
03-Jun-96	45	52.4	5.8	L 0.0200	0.06	0.8	5.7	1.02	0.1	3.79	10.8	0.51	1.53	0.03	0.07	
30-Oct-96	60	49.3	9.8	0.03	0.16	2.8	6.4	0.97	0.12	2.83	8.54	0.44	1.48	0.04	0.16	
30-May-97	35	46.1	6	L 0.0200	0.13	1.9	6.1	0.87	0.11	2.87	9.03	0.53	1.23	0.02	0.07	
31-Oct-97	5	50.9	3.5	L 0.0200	0.09	2.7	6.4	0.99	0.012	3.12	9.48	0.51	1.3	0.03	0.04	
12-May-98	30	51.9	6.6	L 0.0200	0.12	2.3	6.2	1.06	0.11	4.74	9.2	0.5	1.65	0.03	0.07	
20-Oct-98	25	55.1	5.8	L 0.0200	0.11	2.6	6.25	1.21	0.061	4.88	10.4	0.54	1.72	0.02	0.08	
26-May-99	23	60.8	5.7	L 0.0200	0.07	2.09	6.2	1.26	0.075	4.41	11.4	0.6	1.88	0.03	0.05	
07-Oct-99	20	64.3	6	L 0.0200	0.09	2.81	6.42	7.44	1.36	0.0473	4.57	12.7	0.69	1.89	0.0676	0.077
16-May-00	29	64	7.6	L 0.0200	0.09	1.23	5.63	7.34	1.24	0.116	3.76	12.8	0.45	1.84	0.0111	0.073

18-Sep-00	9	70.1	3.5	L 0.0200	0.06	2.76	6.65	7.85	1.44	0.0225	3.98	14.2	0.65	1.94	0.0467	0.08

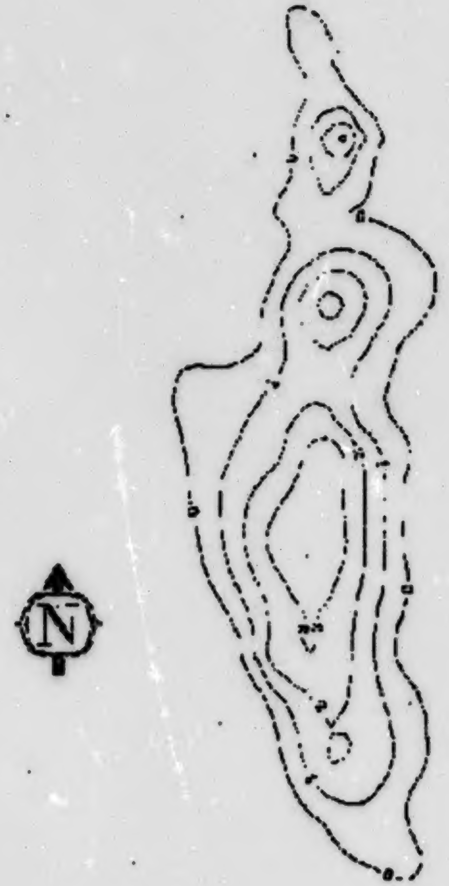
Lower Corning Lake

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01DA0005	44 03 01	66 04 57

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
30	82.06	200.1	1113580	143.75

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	2.0	0.7	3.83	1.36

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX, LIVERPOOL, PITMAN & MERSEY SANDY LOAMS
COVER	RED & WHITE SPRUCE, PINE, MAPLE, BIRCH, OAK, FIR, SOME BLACK SPRUCE, TAMARACK, ALDER
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SERTULARIA, COELOSPHAERIUM KUTZINGIANUM, MELOSIRA VARIANS, PEDIASTRUM DUPLEX V. CLATHRATUM
ZOOPLANKTON	SYNCHAETA SP., KERATELLA CRASSA, BOSMINA LONGIROSTRIS



CORNINGS LAKE

SCALE 1 cm. = 150 meters

: meter contours

Lower Corning Lake

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	40	48	5.3	L 0.0100	0.09	0.4	5.7	5.6		0.11	4.3	9	0.3	1.25	0.02	0.11
18-Oct-83	5	47	5.2	0.01	0.08	0.8	5.8	5.6	0.85	0.05	4	8.6	0.7	0.95	L 0.0100	0.08
02-May-84	35	47	5.3	L 0.0100	0.06	0.6	5.3	5.4	0.88	0.1	4.1	9.3	0.3	1.1	0.02	0.07
16-Oct-84	10	51	4.3	L 0.0100	0.14	1.1	6.1	6	0.95	0.04	4	10	0.4	1.1	0.01	0.07
02-Jun-85	20	56	6.3	L 0.0100	0.11	0.8	5.6	6.2	1.1	0.1	4.5	11.6	0.41	1.3	0.02	0.1
22-Oct-85	20	55	4.7	0.01	0.1	1.1	6	6.5	1	0.052	4.3	11.7	0.44	1.3	0.014	0.097
27-May-86	10	54	4.2	L 0.0100	0.15	1.2	6	6.2	1	0.08	4.16	11	0.42	1.3	0.02	0.09
21-Oct-86	35	54	7.3	0.01	0.12	1.7	6	6.2	1	0.098	4.7	11	0.52	1.4	0.01	0.15
20-May-87	25	51	3.8	L 0.0100	L 0.1000	1		6	0.92	0.096	4.2	10.7	0.42	1.3	L 0.0100	0.06
07-Oct-87	25	51	5.8	L 0.0100	L 0.1000	1.4	5.9	6.4	1	0.094	3.6	10.6	0.38	1.4	0.02	0.11

21-May-88	20	52	4.6	0.02	L 0.1000	1.5	5.9	6	0.95	0.082	4.4	10.4	0.4	1.3	0.02	0.07
22-Nov-88	50	51	7.8	L 0.0100	0.13	1.7	5.8	5.9	1	0.12	3.3	9.9	0.43	1.4	0.01	0.16
24-May-89	30	49	5.3	0.01	0.19	1.3	6	6.1	0.89	0.077	3.5	9.1	0.7	1.2	0.03	0.1
24-Oct-89	25	53	3.4	L 0.0100	0.26	1.6	6.1	6.1	1	0.04	3.9	10.7	0.48	1.3	0.02	0.08
05-Jun-90	35	49.4	5.4	L 0.0100	0.17	0.9	5.6	5.9	0.88	0.12	3.6	9.6	0.4	1.2	0.03	0.15
14-Aug-90	20	50	4.8	0.01	0.21	1.9	6	6.1	0.81	0.062	3.8	10	0.4	1.2	0.01	0.2
31-May-91	30	46	3.8	L 0.0100	0.14	1.1	5.8	5.8	0.89	0.084	4.2	9.5	0.46	1.1	0.02	0.08
03-Jun-92	25	48	4.2	L 0.0100	0.12	1.2	5.9	6.1	0.93	0.07	3.2	10.4	0.47	1.3	0.02	0.05
22-Oct-92	10	49	3	L 0.0200	0.17	1.6	6.4	6.7	0.91	0.027	3.4	11	0.48	1.2	0.01	0.077
05-Jul-93	30	46.7	3.9	L 0.0100	0.17	1.6	5.9	6	0.87	0.083	3.6	10.3	0.42	1.2	0.03	0.13
19-Oct-93	15	49	3.3	L 0.0200	0.17	1.6	6.1	6.3	0.95	0.049	3.6	10.8	0.47	1.1	0.01	0.1
03-Nov-94	20	46	4.6	L 0.0200	0.11	1.6	6.2	6.1	0.9	0.045	3.4	10.4	0.4	1.1	L 0.0100	0.07
25-May-95	25	54	6.7	L 0.0200	0.09	0.9	5.7	6.7	0.99	0.077	3.9	11.3	0.44	1.29	0.01	0.06
17-																

Oct-95	40	49	5.5	L 0.0200	0.08	1.8	5.9	6.4	0.97	0.087	3.06	10.22	0.41	1.09	0.01	0.2
03-Jun-96	45	44.8	9.6	L 0.0200	0.08	0.6	5.7	5.8	0.82	0.12	3.37	9.41	0.39	1.11	0.02	0.1
30-Oct-96	75	43.9	5.8	L 0.0200	0.13	1.5	5.8	5.3	0.79	0.16	2.51	7.9	0.38	1.1	0.01	0.22
30-May-97	40	40	3.3	L 0.0200	0.12	0.95	5.7	4.82	0.71	0.11	2.5	8.14	0.39	0.89	0.01	0.07
31-Oct-97	10	46.3	5.9	L 0.0200	0.08	1.5	6	5.71	0.81	0.035	2.66	9.16	0.38	0.98	0.01	0.09
12-May-98	40	42.9	9.6	L 0.0200	0.13	1.41	5.8	4.86	0.78	0.1	3.26	7.97	0.39	1.03	0.03	0.12
20-Oct-98	70	45.8	5.5	L 0.0200	0.18	1.38	5.72	5.14	1	0.16	3.86	9	0.37	1.37	0.02	0.2
26-May-99	34	47.8		L 0.0200	0.07	1.11	5.83	5.64	0.89	0.096	3.4	9.46	0.38	1.17	0.02	0.1
07-Oct-99	34	52.5	7.2	L 0.0200	0.12	2.01	6.16	6.23	1	0.0928	3.73	10.4	0.43	1.27	0.0182	0.116
16-May-00	32	50.7	5.9	L 0.0200	0.09	0.36	5.75	5.87	0.94	0.106	3.17	10.3	0.36	1.24	0.013	0.086
18-Sep-00	14	53.5	3.5	L 0.0200	0.07	0.82	6.11	6.61	0.99	0.031	3.5	11.1	0.37	1.14	0.00731	L 0.0500

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:41:34

Pierce Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01DA0006	44 07 09	66 05 49

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
35	37.15	1.2	371456	2.58

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
2.60	0.80	0.60	4.19	1.94

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX, LIVERPOOL & ASPOTOGAN SANDY LOAMS
COVER	RED & WHITE SPRUCE, PINE, HEMLOCK, MAPLE, BIRCH, OAK, SOME FIR. SPHAGNUM, TAMARACK, ALDER, BLACK SPRUCE IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	FRAGILLARIA CONSTRUENS V. VENTER, SELENASTRUM GRACILE, GLOEOCYSTIS GIGAS
ZOOPLANKTON	KERATELLA CRASSA, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, POLYARTHA VULGARIS, EUBOSMINA LONGISPINA

Pierce Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	15	47	4.8	L 0.0100	0.09	0.5	5.6	5.6		0.12	4	9.1	0.3	1.1	0.01	0.05
18-Oct-83	5	51	4.7	0.02	0.11	1.3	5.8	6.2	0.95	0.058	3.8	10	0.5	1.2	0.01	0.06
02-May-84	25	45	4.7	L 0.0100	L 0.0500	0.7	5.4	5.4	0.88	0.087	3.9	8.9	0.3	1	0.02	0.05
16-Oct-84	5	48	3.6	L 0.0100	0.12	1	6.2	5.7	0.92	0.04	3.7	9.4	0.4	1	0.01	0.029
02-Jun-85	5	50	4.9	L 0.0100	0.11	0.8	5.8	5.5	1	0.08	4.2	10.3	0.4	1	0.01	0.056
22-Oct-85	L 5.0000	51	4.5	L 0.0100	L 0.1000	1.2	6.2	6.1	0.96	0.035	4.1	10.7	0.41	1.1	0.017	0.052
27-May-86	10	50	4.4	L 0.0100	0.13	1.2	5.9	5.8	0.97	0.08	3.89	10.1	0.41	1.1	0.02	0.042
21-Oct-86	10	50	5.3	L 0.0100	0.11	1.1	6	5.8	0.95	0.085	4	10.1	0.4	1.1	0.02	0.06
20-May-87	20	49	3.6	L 0.0100	L 0.1000	0.9	5.8	5.5	0.91	0.096	4.5	10	0.31	1.1	0.01	0.06
07-Oct-87	10	51	4	L 0.0100	L 0.1000	1.2	6	6.2	1	0.061	3.9	10.1	0.41	1.1	0.02	0.08

21-May-88	20	47	4.6	0.01	L 0.1000	1.3	5.9	5.5	0.91	0.095	3.9	10.1	0.38	1	0.02	0.08
22-Nov-88	20	47	5.2	L 0.0100	L 0.1000	1.1	5.8	5.5	0.92	0.09	3.9	9	0.38	1.1	0.01	0.09
24-May-89	25	53	4.8	L 0.0100	0.17	0.6	5.7	5.7	0.84	0.092	3.7	9.7	2.2	1	0.02	0.05
24-Oct-89	10	49	2.9	L 0.0100	0.22	1.5	6	5.5	0.96	0.036	4.3	9.6	0.44	1.1	L 0.0100	0.05
05-Jun-90	15	46.7	3.8	L 0.0100	0.15	0.8	5.6	5.5	0.87	0.09	3.7	9	0.39	1	0.02	0.07
30-Oct-90	5	50	4.3	L 0.0500	0.12	1.3	5.8	6	0.98	0.055	4.3	9.3	0.45	0.95	L 0.0100	0.05
31-May-91	25	44	3.5	L 0.0100	0.16	1	5.7	5.6	0.85	0.1	4.3	8.8	0.5	0.97	0.02	0.041
03-Jun-92	25	43	3.7	L 0.0100	0.11	1	5.8	5.4	0.87	0.093	3.1	9.1	0.4	1	0.02	0.05
22-Oct-92	L 5.0000	45	2.7	L 0.0200	0.14	1.1	6.3	6.1	0.85	0.025	3.8	9.8	0.43	0.91	0.01	0.045
05-Jul-93	20	42.5	3.7	L 0.0100	0.13	1	5.9	5.3	0.81	0.077	3.5	9.2	0.39	1	0.02	0.061
19-Oct-93	L 5.0000	46	4	0.03	0.14	1	6	5.9	0.88	0.034	4.2	9.9	0.46	0.94	0.01	0.038
03-Nov-94	10	43	3.9	L 0.0200	0.09	1.1	5.9	5.1	0.82	0.058	3.2	10.2	0.45	0.93	0.01	0.05
25-May-95	20	47	4.4	L 0.0200	0.08	0.5	5.6	5.8	0.88	0.1	3.8	9.6	0.43	0.96	0.01	0.045
17-																

Oct-95	15	47	4.9	L 0.0200	0.05	1.2	5.9	5.8	0.913	0.07	3.76	9.62	0.43	0.89	0.02	0.07
03-Jun-96	45	41.3	4.2	L 0.0200	0.06	0.4	5.5	5.1	0.78	0.13	3.4	8.22	0.41	0.82	0.02	0.06
30-Oct-96	40	39.3	6.6	L 0.0200	0.1	1.1	5.9	4.9	0.71	0.13	2.83	6.86	0.32	0.83	0.01	0.11
30-May-97	30	35.1	5	L 0.0200	0.09	0.72	5.7	4.19	0.64	0.11	2.63	6.79	0.37	0.72	L 0.0100	0.05
31-Oct-97	5	40.5	2.6	L 0.0200	0.08	1.4	6.2	4.92	0.73	0.023	3.24	7.57	0.39	0.82	0.01	0.04
12-May-98	30	39.9	5.3	L 0.0200	0.18	1.85	5.9	4.26	0.74	0.11	3.62	6.7	0.41	0.86	0.01	0.06
20-Oct-98	15	39.2	4.2	L 0.0200	0.08	1.02	5.9	4.71	0.82	0.1	4.13	7.35	0.37	0.86	0.01	0.1
26-May-99	27	44.5	5.3	L 0.0200	0.06	0.95	5.83	5.18	0.88	0.11	3.75	8.17	0.45	0.97	0.02	0.07
07-Oct-99	20	46.3	6.1	L 0.0200	0.08	1.19	5.49	5.55	0.92	0.0835	3.92	9.01	0.49	0.88	0.0198	0.064
16-May-00	27	49.3	5.9	0.04	0.12	-0.09	5.44	5.56	0.95	0.12	3.31	9.69	0.45	0.99	0.0154	0.075
18-Sep-00	8	50.9	2.9	L 0.0200	0.05	0.63	6.09	6.2	0.98	0.0409	3.69	10.5	0.49	0.95	0.00941	L 0.0500

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:04:06

Coggins Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01DA0007	43 58 41	66 06 28

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	30.0	4.2	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.2	0.7	0.0	0.0

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	DEERFIELD, DANESVILLE & PITMAN SANDY LOAMS
COVER	SPRUCE, FIR, RED MAPLE, BIRCH, POPLAR, FIR, ALDER. STUNTED BLACK SPRUCE, TAMARACK, SPHAGNUM, SEDGES IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	SYNURA UVELLA, ANABAENA FLOS-AQUAE, GLOEOTHECE RUPESTRIS, GYMNODIUM FUSCAM, SCENEDESMUS BIJUGA, CHLOROCOCCUM LUMICOLA, TETRASPORA GELATINOSA
ZOOPLANKTON	KERATELLA CRASSA, KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, BOSMINA LONGIROSTRIS, CYCLOPOID NAUPLII

Coggins Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	80	54	9.9	L 0.0100	0.12		6.1	6.6	0.95	0.23	5.2	9.4	0.5	1.6	0.02	0.23
18-Oct-83	20	62	8.6	0.01	0.16	4	6	7.8	1.2	0.1	4.8	10	0.7	1.7	0.02	0.18
02-May-84	80	53	11	L 0.0100	0.09	1.8	5.7	6.3	0.9	0.21	5	9.7	0.6	1.5	0.02	0.13
02-May-84	70	54	9.8	L 0.0100	0.09	1.8	5.7	6.5	0.93	0.22	5	9.7	0.6	1.5	0.02	0.13
02-May-84	70	54	9.5	L 0.0100	0.09	1.8	5.7	6.5	0.91	0.2	5	9.7	0.6	1.5	0.01	0.13
16-Oct-84	30	60	9.3	0.01	0.17	3.6	6.8	7.3	1.2	0.092	4	10.1	0.45	1.5	0.02	0.17
02-Jun-85	L 5.0000	126	5.8	L 0.0100	0.14	6.4	6.7	14.6	1.9	0.04	6.1	29	1.15	3.2	0.03	0.084
22-Oct-85	40	72	9.5	L 0.0100	0.13	3	6.4	8.7	1.4	0.09	5	14.6	0.58	1.9	0.018	0.19
27-May-86	60	76	9.2	L 0.0100	0.19	1.9	6.1	9	1.4	0.2	5.26	15.8	0.7	2	0.06	0.26
21-Oct-86	100	68	12	0.02	0.16	2.8	6.2	8	1.4	0.31	5.2	13.4	0.79	2.1	0.03	0.51
20-May-87	60	70	6.2	L 0.0100	L 0.1000	2.1	6	8.3	1.2	0.19	4.5	14.5	0.64	1.8	0.01	0.18
07-																

Oct-87	100	72	13	L 0.0100	0.13	2.6	6.1	8.8	1.5	0.28	6.5	13.9	0.77	2.2	0.04	0.38
21-May-88	40	74	6.2	0.02	L 0.1000	2.2	6.2	8.8	1.4	0.13	5.27	15.4	0.8	2	0.03	0.13
22-Nov-88	100	64	13	L 0.0100	0.15	2.8	5.8	7.5	1.3	0.26	4.8	12.3	0.91	2	0.02	0.4
24-May-89	70	64	8.1	0.01	0.31	2.6	6.2	8.1	1.2	0.16	4.5	12.2	0.86	1.7	0.05	0.23
24-Oct-89	40	79	6.2	L 0.0100	0.33	3.9	6.4	8.6	1.6	0.082	6.2	15	0.72	2.4	0.02	0.15

Lake George

No Map

Drainage Basin	Station Number	Latitude	Longitude
Coggins Brook	NS01EA0048	44 00 00	66 03 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
46	1180.0	29.65	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
30.0	6.0	4.0	0.0	0.0

GEOLOGY	UPPER SILURIAN QUARTZITE WITH SLATE INTERBEDS, VOLCANIC ROCKS
SOILS	YARMOUTH, PITMAN, DEERFIELD, HALFAX & BRIDGEWATER SANDY LOAMS
COVER	SPRUCE, FIR, BIRCH, MAPLE, POPLAR, ALDER, HEMLOCK, BEECH. STUNTED BLACK SPRUCE, TAMARACK, SPHAGNUM, SEDGES IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	OPHIOCYTIUM COCHLEARE, APHANOCAPSA RIVULARIS, DESMIDIUM BAILEYI, PEDIASTRUM DUPLEX V. CLATHRATUM
ZOOPLANKTON	KERATELLA TAUROCEPHALA, KERATELLA COCHLEARIS, CYCLOPOID NAUPLII, CYCLOPOID COPEPODS, CALANOID COPEPODS

George Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	5	49	3.7	L 0.0100	0.1	0.2	5.6	5.7	0.95	0.065	4.2	9.9	0.3	1.1	0.02	0.033
18-Oct-83	L 5.0000	49	2.8	0.01	0.07	0.6	5.7	6	0.91	0.025	4.2	9.5	0.5	1	L 0.0100	0.033
02-May-84	10	48	3.1	0.03	0.09	0.5	5.5	5.5	0.93	0.047	3.9	10.1	0.3	1	0.01	0.05
16-Oct-84	5	49	2.6	L 0.0100	0.11	0.4	5.8	5.7	0.85	0.022	4	10.1	0.4	1	0.02	0.032
02-Jun-85	L 5.0000	50	3.1	0.01	0.11	0.5	5.6	5.5	0.9	0.05	3.9	10.3	0.4	0.9	0.01	0.032
22-Oct-85	5	51	2.7	L 0.0100	L 0.1000	0.4	5.8	6	0.95	0.023	4.5	10.6	0.41	1.1	0.02	0.032
27-May-86	5	50	2.7	L 0.0100	0.11	0.5	5.8	5.7	0.93	0.06	4.05	10.5	0.37	1	0.02	0.02
21-Oct-86	5	51	3	L 0.0100	0.1	0.4	5.7	5.9	0.94	0.04	4	10.6	0.42	1.1	0.02	0.036
20-May-87	10	49	2.7	L 0.0100	L 0.1000	0.5	5.8	5.7	0.91	0.058	4.3	10.5	0.36	1	L 0.0100	0.04
07-Oct-87	L 5.0000	49	3.3	L 0.0100	L 0.1000	0.7	5.8	5.7	0.91	0.031	3.6	10.2	0.38	1.1	L 0.0100	0.06

21-May-88	10	48	3.6	L 0.0100	L 0.1000	1.1	5.9	5.6	0.89	0.051	3.8	9.9	0.39	0.98	L 0.0100	0.024
22-Nov-88	5	47	2.5	L 0.0100	0.11	0.9	5.8	5.6	0.88	0.047	3.6	9.4	0.43	1.1	0.01	0.06
24-May-89	10	46	2.8	0.05	L 0.1000	0.6	5.7	5.2	0.84	0.05	3.3	8.8	0.64	1	0.02	0.05
24-Oct-89	5	49	2.8	L 0.0100	0.13	1	6	5.7	0.92	0.018	3.8	10.1	0.46	1.1	0.01	0.05
16-Aug-90	5	50	2.9	L 0.0100	0.14	3.1	6.6	5.6	0.98	0.025	4.3	8.6	0.3	1.8	L 0.0100	0.014
30-Oct-90	L 5.0000	51	3.6	L 0.0500	0.09	1	5.9	6.1	0.94	0.031	4	10.2	0.47	0.93	L 0.0100	0.05
31-May-91	15	45	2.6	L 0.0100	0.11	0.6	5.6	5.7	0.83	0.053	3.9	9.4	0.46	0.97	0.02	0.06
03-Jun-92	15	45	3	L 0.0100	0.11	0.8	5.8	5.7	0.84	0.057	3	9.8	0.43	0.96	0.02	0.015
22-Oct-92	L 5.0000	46	2	L 0.0200	0.11	0.7	6	6.1	0.84	0.017	4	9.9	0.46	0.93	0.01	0.034
05-Jul-93	10	44.4	2.5	L 0.0100	0.11	0.5	5.7	5.6	0.87	0.053	3.8	10	0.39	1	0.01	0.041
19-Oct-93	5	45	3.6	L 0.0200	0.13	1	5.9	5.8	0.87	0.028	4.1	10.7	0.49	0.99	0.01	0.05
03-Nov-94	10	43	2.9	L 0.0200	0.06	-0.1	5.7	5.7	0.85	0.032	3.4	9.6	0.4	0.88	L 0.0100	0.068
25-May-95	15	47	3.4	L 0.0200	0.05	0.5	5.6	5.9	0.85	0.06	3.4	9.8	0.41	0.92	0.01	0.033
17-																

Oct-95	10	46	3.7	L 0.0200	0.05	0.7	5.9	5.9	0.882	0.034	3.35	9.68	0.44	0.829	0.01	0.05
03-Jun-96	45	43.4	3.2	L 0.0200	0.06	0.3	5.5	5.7	0.82	0.072	3.27	9.28	0.4	0.89	0.01	0.03
30-Oct-96	25	43.9	4.2	L 0.0200	0.06	1	5.7	5.2	0.76	0.069	2.85	8.53	0.33	0.85	0.01	0.08
30-May-97	25	40.2	4.2	L 0.0200	0.09	0.7	5.8	4.93	0.73	0.084	2.49	8.32	0.35	0.75	L 0.0100	0.05
31-Oct-97	25	42.1	3.2	L 0.0200	0.06	0.84	6	5.14	0.75	0.02	2.74	8.62	0.37	0.86	L 0.0100	0.04
12-May-98	15	40.4	3.7	L 0.0200	0.08	1.16	5.9	4.64	0.74	0.061	2.86	8.08	0.35	0.82	0.01	0.04
19-Oct-98	10	39.9	2.9	L 0.0200	0.07	0.79	5.9	4.99	0.76	0.029	3.24	8.4	0.37	0.83	L 0.0100	0.05
26-May-99	14	42.3	4.2	L 0.0200	0.05	0.78	5.76	5.04	0.8	0.058	3.13	8.27	0.35	0.86	0.01	0.03
07-Oct-99	8	42.7	3.3	L 0.0200	0.07	0.99	5.85	5.28	0.83	0.0275	3.37	9	0.37	0.84	0.0084	L 0.0500
16-May-00	13	45.1	4.1	L 0.0200	0.09	-0.16	5.85	5.3	0.86	0.0608	3.03	9.11	0.36	0.89	0.00755	L 0.0500
18-Sep-00	8	45.3	3.4	L 0.0200	0.05	0.5	5.96	5.68	0.87	0.0215	3.15	9.38	0.41	0.88	0.0076	L 0.0500

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 11:41:58

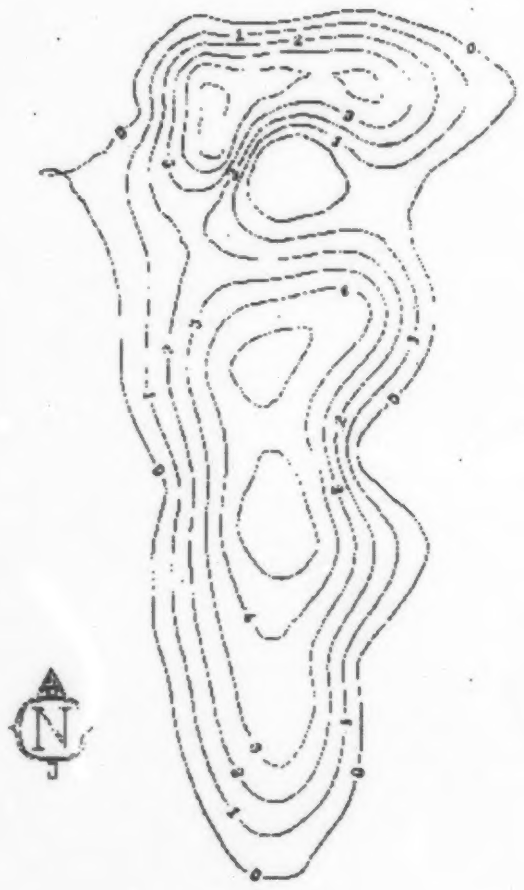
Jesse Lake

Drainage Basin	Station Number	Latitude	Longitude
Tusket	NS01EA0050	44 01 59	66 00 28

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
30	26.77	1.85	637885	2.32

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.3	1.0	0.40	5.7	2.38

GEOLOGY	UPPER SILURIAN QUARTZITE WITH SLATE INTERBEDS, VOLCANIC ROCKS
SOILS	MERSEY SANDY LOAM
COVER	PINE, SPRUCE, MAPLE, BEECH, POPLAR, OAK. HEATH VEGETATION OF LAMBKILL, HUCKLEBERRY, SWEET FERN, BLUEBERRY
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION BAVARICUM, TABELLARIA FENESTRATA, HORMIDIUM KLEBSII
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA



JESSE LAKE

SCALE 1 cm. = 85 meters

1 meter contours

Jesse Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	30	46	4.4	L 0.0100	0.1	1	5.9	5	0.83	0.11	4	8.6	0.4	1.35	0.01	0.07
18-Oct-83	5	48	4.1	0.02	0.08	2	5.9	5.4	0.97	0.028	3.8	9	0.5	1.3	0.02	0.05
02-May-84	20	46	5	0.02	0.08	1	5.7	5	0.95	0.08	3.8	9.4	0.4	1.2	0.01	0.04
16-Oct-84	5	48	3.6	L 0.0100	L 0.1000	1.8	6.5	5.2	0.92	0.022	3.4	8.9	0.41	1.3	0.02	0.037
02-Jun-85	5	50	4.4	0.02	0.11	1.3	6	5.2	1.1	0.05	3.9	9.9	0.44	1.3	0.01	0.036
22-Oct-85	20	52	3.8	L 0.0100	L 0.1000	1.6	6.2	5.7	1.1	0.025	3.8	10.4	0.51	1.4	0.017	0.057
27-May-86	10	51	4.7	L 0.0100	0.12	1.1	6	5.4	1.1	0.06	3.74	10.4	0.46	1.5	0.02	0.044
21-Oct-86	20	52	5.5	0.01	0.11	1.3	6.1	5.5	1.1	0.057	3.7	10.6	0.53	1.5	0.03	0.13
20-May-87	20	49	3.7	0.03	L 0.1000	1.3	6	5.1	1	0.08	3.7	10	0.41	1.4	0.01	0.06
07-Oct-87	10	50	4.3	L 0.0100	L 0.1000	1.8	6.3	5.4	1.1	0.05	3.1	10	0.46	1.5	0.03	0.09
22-Nov-88	20	48	4.5	L 0.0100	0.11	2.2	6.1	5	1.1	0.075	3.2	9.3	0.47	1.5	0.02	0.13
24-May-	20	46	4.4	0.01	0.12		6	5.2	1	0.067	3.3	8.5	0.74	1.3	0.02	0.08

89																
24-Oct-89	10	51	3.2	L 0.0100	0.17	2.3	6.2	5.3	1.1	0.016	3.6	10.2	0.52	1.5	0.02	0.05
05-Jun-90	15	47.3	3.4	L 0.0100	0.12	1.2	5.9	5.2	0.98	0.09	3.6	9.3	0.43	1.3	L 0.0100	0.06
15-Aug-90	10	47	3.7	L 0.0100	0.17	1.7	6	5.3	0.89	0.048	3.7	8.8	0.46	1.3	0.05	0.05
30-Oct-90	10	51	3.5	L 0.0500	0.12	2	6.2	5.5	1.1	0.041	4	9.2	0.51	1.3	0.01	0.06
30-Oct-90	10	51	3.5	L 0.0500	0.12	1.9	6.2	5.6	1.1	0.04	4	9.2	0.52	1.3	0.01	0.05
30-Oct-90	10	51	3.5	L 0.0500	0.12	1.9	6.2	5.5	1.1	0.038	4	9.4	0.5	1.3	0.01	0.05
31-May-91	25	43	3.6	L 0.0100	0.13	1.1	5.9	5.1	0.96	0.088	4.2	8.7	0.5	1.2	L 0.0100	0.07
03-Jun-92	25	44	3.5	0.04	0.13	1.4	6	5.1	0.93	0.07	3	9.7	0.49	1.3	0.01	0.051
22-Oct-92	10	45	2.4	L 0.0200	0.13	1.9	6.4	5.6	1	0.022	3.5	9.6	0.6	1.2	0.02	0.068
05-Jul-93	20	44.9	3.9	L 0.0100	0.13	1.6	6	5.3	1	0.072	3.3	9.9	0.44	1.2	0.02	0.063
19-Oct-93	10	46	2.9	L 0.0200	0.13	1.9	6.3	5.4	1	0.032	3.1	10.2	0.53	1.2	0.02	0.07
03-Nov-94	15	44		L 0.0200	0.08	1.1	6.1	5.4	0.98	0.037	3.8	9.3	0.56	1.2	0.02	0.07
25-May-95	25	49	4.3	L 0.0200	0.07	0.8	5.9	5.7	1	0.076	3.3	10.4	0.53	1.12	0.02	0.06
17-Oct-95	20	48	4.8	L 0.0200	0.07	1.4	6.1	5.9	1.07	0.042	3.01	10.4	0.61	1.18	0.02	0.07
03-Jun-96	45	44.9	4.3	0.041	0.13	0.6	5.8	5.1	0.92	0.091	3.02	9.24	0.52	1.2	0.01	0.08
30-Oct-96	50	42.9	7.3	0.02	0.13	1.4	6	4.7	0.87	0.12	2.47	7.82	0.45	1.13	0.02	0.22

30-May-97	40	37.7	5	L 0.0200	0.13	0.82	5.8	4.22	0.75	0.12	2.37	7.48	0.46	1	0.01	0.11
31-Oct-97	10	42.2	3.3	L 0.0200	0.07	2	6.3	4.76	0.85	0.028	2.54	7.94	0.53	1.11	0.02	0.08
11-May-98	30	40.1	5.3	L 0.0200	0.1	1.66	6	4.18	0.82	0.098	3.16	7.13	0.5	1.13	0.02	0.09
19-Oct-98	25	42.5	4.8	L 0.0200	0.09	1.77	6.12	4.63	0.9	0.061	3.31	7.95	0.54	1.17	0.01	0.09
26-May-99	25	44.5	5.3	L 0.0200	0.06	1.41	6.04	4.81	0.98	0.082	3.21	8.24	0.53	1.28	0.02	0.06
07-Oct-99	15	46	4.7	L 0.0200	0.08	2.05	6.3	5.1	1.02	0.0502	3.14	9.23	0.59	1.27	0.0203	0.145
16-May-00	27	49	5.8	0.04	0.09	0.76	6	5.18	1.04	0.108	2.88	9.87	0.53	1.32	0.011	0.072
18-Sep-00	13	51	3.5	L 0.0200	0.06	1.82	6.5	5.79	1.09	0.0219	2.81	10.6	0.63	1.33	0.0228	0.08

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 13:50:14

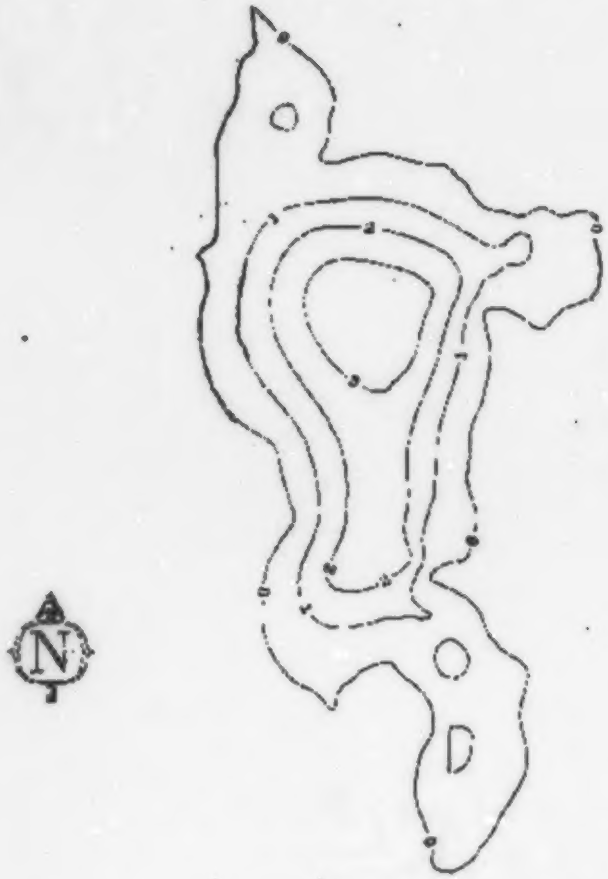
Brenton Lake

Drainage Basin	Station Number	Latitude	Longitude
Ohio Millstream	NS01EA0009	43 57 41	66 04 09

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
30	58.42	4.95	6892272	0.57

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.6	0.5	3.68	1.18

GEOLOGY	UPPER SILURIAN QUARTZITE WITH SLATE INTERBEDS, VOLCANIC ROCKS
SOILS	DEERFIELD, YARMOUTH & PITMAN SANDY LOAMS
COVER	SPRUCE, FIR, RED MAPLE, BIRCH, ALDER, POPLAR. STUNTED BLACK SPRUCE, TAMARACK, SHAGNUM, SEDGES IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	SPIROGYRA FLUVIATILIS, ACTINASTRUM HANTZCHII, OOCYSTIS BORGEI, DICTOSPHAERIUM PULCELLUM
ZOOPLANKTON	KERATELLA TAUROCEPHALA, POLYARTHA VULGARIS, EUBOSMINA LONGISPINA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BRENTON LAKE

SCALE 1 cm = 110 meters

1 meter contours

Brenton Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	220	50	19	L 0.0100	0.15	-0.2	4.8	5.7		0.35	6.9	8	0.3	1.25	0.02	0.65
18-Oct-83	220	52	16	0.01	0.31	0.9	5.2	6.6	1	0.4	7.5	8.4	0.5	1.4	0.02	0.83
02-May-84	160	46	15	L 0.0100	0.11	-0.2	4.6	5	0.77	0.24	5.2	7.7	0.3	1	0.02	0.36
16-Oct-84	180	52	16	0.01	0.16	1.2	5.5	6	0.98	0.33	5.7	9.5	0.4	1.5	0.02	0.73
02-Jun-85	160	68	16	0.03	0.16	-0.1	4.8	7.3	1.1	0.32	6.6	13.1	0.46	1.6	0.02	0.58
22-Oct-85	420	64	25	L 0.0100	0.22	1	5.2	7.4	1.3	0.4	7.5	12	0.44	2.1	0.03	1
27-May-86	140	64	14	0.01	0.19	0.3	5	6.9	1.1	0.29	5.78	12.5	0.46	1.6	0.03	0.51
21-Oct-86	360	61	32	0.07	0.21	0.1	4.8	6.6	1.2	0.49	7.5	10.9	0.44	1.7	0.03	1.2
20-May-87	180	57	12	L 0.0100	L 0.1000	0.1	4.9	6.3	1	0.27	5.1	11.5	0.45	1.3	0.02	0.55
07-Oct-87	240	64	25	L 0.0100	0.12	-0.2	4.8	6.9	1.4	0.45	8.6	10.2	0.48	1.8	0.03	1.01

21-May-88	150	61	9.7	L 0.0100	L 0.1000	0.5	5.1	6.7	1.1	0.27	5.76	12.1	0.56	1.4	0.02	0.48
22-Nov-88	280	61	20	L 0.0100	0.18	1.7	5.8	6.4	1.3	0.42	6.8	11.3	0.5	1.8	0.03	0.97
24-May-89	200	59	8.4	0.01	L 0.1000	0.1	4.8	6.8	1	0.24	3.7	10.6	0.9	1.5	0.03	0.61
24-Oct-89	220	72	11	L 0.0100	0.39	0.3	5	7.5	1.5	0.34	7.3	12.9	0.63	2	0.04	0.77
13-Aug-90	270	53	16	0.07	0.38	1.1	4.9	6.4	1	0.47	3.7	9.1	0.44	1.6	0.02	1.2
30-Oct-90	260	70	19	0.06	0.37	0.2	4.8	7.4	1.4	0.48	4.1	10.6	0.61	1.7	0.03	1.1
31-May-91	180	48	10.2	0.02	0.27	0.3	5	5.9	0.83	0.3	4.3	8.8	0.62	1.1	0.01	0.53
03-Jun-92	135	56	9	L 0.0100	0.19	0.4	5.1	6.8	1	0.27	3.5	12	0.61	1.3	0.02	0.43
22-Oct-92	190	60	10.3	L 0.0200	0.33	0.5	5.1	7.6	1.2	0.34	4.3	12	0.59	1.5	0.03	0.75
05-Jul-93	200	53.5	12.4	0.03	0.39	0.5	4.9	6.6	1	0.37	3.1	11.2	0.41	1.4	0.03	0.65
19-Oct-93	110	61	16.6	0.03	0.32	0.9	5.1	7.5	1.3	0.35	6.2	12.3	0.58	1.6	0.03	0.68
03-Nov-94	190	56	19.1	L 0.0200	0.2	0.4	4.9	7	1.1	0.35	4	11	0.65	1.5	0.03	0.83
25-May-95	110	67	9.9	L 0.0200	0.11	-1.1	4.8	7.7	1.15	0.22	4	13.8	0.64	1.44	0.03	0.4
17-																

Oct-95	240	63	18.1	0.03	0.17	0.9	5	7.7	1.22	0.43	4.13	11.69	0.58	1.45	0.03	0.88
03-Jun-96	195	50.8	15.3	L 0.0200	0.11	0.2	4.8	6.2	0.85	0.32	3.23	9.83	0.49	1.18	0.02	0.53
30-Oct-96	360	46.5	28.4	L 0.0200	0.24	0.9	4.8	5	0.88	0.57	1.8	6.72	0.46	1.3	0.03	1.16
30-May-97	190	43.3	14.2	L 0.0200	0.2	0.52	4.9	4.93	0.67	0.3	2.22	7.82	0.5	0.9	0.02	0.49
31-Oct-97	175	52.8	12.5	0.03	0.22	0.87	5.3	6.03	0.9	0.32	3.43	9.59	0.65	1.22	0.03	0.83
12-May-98	200	47.9	15.4	L 0.0200	0.19	1.15	5.2	5.16	0.81	0.36	3.26	8.11	0.5	1.5	0.02	0.56
21-Oct-98	320	62.5	30.5	L 0.0200	0.26	-1.05	4.4	6.03	1.2	0.59	4.27	8.97	0.47	1.6	0.03	1.1
26-May-99	136	60.2	13.1	L 0.0200	0.12	0.19	4.9	6.55	1.07	0.33	3.65	11.1	0.56	1.43	0.02	0.45
07-Oct-99	272	65.9	28.2	0.02	0.22	0.12	4.66	7.27	1.32	0.448	4	11.4	0.61	1.75	0.0315	1.3
16-May-00	140	62.6	14.1	L 0.0200	0.13	-0.59	4.86	6.85	1.06	0.292	2.95	12.1	0.54	1.33	0.0208	0.474
18-Sep-00	157	66.1	11.5	L 0.0200	0.13	0.22	5.16	7.77	1.18	0.293	4.14	13.6	0.65	1.62	0.024	0.78

Trefry Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Cheboque	NS01EA0010	43 50 07	66 02 37

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	29.62	1.0	922829	0.87

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.50	1.0	0.5	12.44	3.12

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	LIVERPOOL & PITMAN SANDY LOAMS
COVER	SPRUCE, MAPLE, WIRE BIRCH, FIR, ALDER. BURNED AREAS WITH LAMBKILL, BLUEBERRY, SWEET FERN, SPHAGNUM. A FEW POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SERTULARIA, GYROSYGMA SPENCERII, XANTHIDIUM SUBHASTIFERUM, CLOSTERIDIUM ACUTUM
ZOOPLANKTON	CHONOCHILUS UNICORNIS, KERATELLA CRASSA, POLYARTHA VULGARIS, BOSMINA LONGIROSTRIS

Trefry Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	30	64	5.2	0.02	0.15		6.2	7.3	1.8	0.1	5	12.1	0.5	1.8	0.02	0.11
18-Oct-83	5	67	5.6	0.04	0.15	3.7	5.9	8	1.3	0.028	4.4	13.1	0.6	2	0.1	0.24
02-May-84	40	63	6.6	0.04	0.12	2.1	6	7.1	0.73	0.1	5	13.2	0.5	1.7	0.02	0.12
16-Oct-84	25	64	5.2	L 0.0100	0.13	3.1	6.6	7.2	1.2	0.038	5.2	11.2	0.5	1.8	0.05	0.2
02-Jun-85	10	67	5.7	0.01	0.12	2.5	6.4	7.6	1.3	0.07	4.9	13.3	0.56	1.9	0.01	0.08
22-Oct-85	25	66	6	0.02	0.12	3.5	6.5	7.6	1.4	0.047	4.6	12.9	0.54	2	0.084	0.33
27-May-86	20	64	5.5	L 0.0100	0.14	2.3	6.3	7	1.3	0.07	4.49	12.9	0.48	1.9	0.03	0.07
21-Oct-86	40	63	7.3	L 0.0100	0.62	3.1	6.4	7	1.3	0.05	4.3	12.2	0.51	1.9	0.05	0.22
20-May-87	30	62	5.3	L 0.0100	L 0.1000	2.4	6.1	6.7	1.2	0.081	5	12.3	0.49	1.8	0.02	0.09
07-Oct-87	20	63	5.5	L 0.0100	L 0.1000	3.3	6.5	7.2	1.3	0.035	4.4	12.6	0.59	2	0.03	0.11
21-May-88	25	61	5.3	L 0.0100	L 0.1000	3.1	6.2	7	1.3	0.065	5.4	11.7	0.49	2	L 0.0100	0.08
22-Nov-	30	59	5.9	L 0.0100	0.13	3.8	6.2	6.8	1.3	0.076	4.4	10.9	0.47	2	0.02	0.19

88															
24-May-89	25	60	4.7	0.01	L 0.1000	3.1	6.3	6.9	1.2	0.065	4.3	10.3	0.87	1.9	0.03	0.1
24-Oct-89	15	64	4	L 0.0100	0.24	3.8	6.4	7	1.2	0.026	4.7	12.1	0.58	2	0.03	0.08
16-Aug-90	30	62	5.8	L 0.0100	0.21	3.7	6.4	7.3	1.3	0.033	4.7	11	0.57	2.1	0.1	0.08
30-Oct-90	15	67	5.7	L 0.0500	0.17	3.6	6.4	7.4	1.4	0.034	5.1	12.2	0.61	1.9	0.04	0.14
31-May-91	35	59	4.5	0.02	0.17	2.7	6.3	7.3	1.2	0.067	5.6	11.4	0.65	1.9	0.03	0.11
03-Jun-92	30	60	4.4	0.03	0.16	2.9	6.4	7.1	1.2	0.079	4.5	12.1	0.62	2	0.02	0.053
22-Oct-92	10	60	3.8	L 0.0200	0.17	3.7	6.6	7.8	1.3	0.025	5.2	12.1	0.65	2	0.05	0.12
05-Jul-93	30	58.1	5	L 0.0100	0.18	3.1	6.4	7.1	1.2	0.066	4.7	12	0.57	1.8	0.06	0.05
19-Oct-93	10	61	5.6	L 0.0200	0.18	3.9	6.6	7.4	1.3	0.026	4.7	12.6	0.67	1.9	0.04	0.14
03-Nov-94	30	55	6.2	L 0.0200	0.12	3.2	6.3	7	1.2	0.044	4.2	11.4	0.61	1.8	0.05	0.16
25-May-95	35	62	6	L 0.0200	0.11	2.1	6.2	7.3	1.21	0.091	4.7	12.1	0.59	1.77	0.02	0.11
17-Oct-95	20	63	6.3	L 0.0200	0.08	3.2	6.3	7.7	1.33	0.032	4.57	12.68	0.64	1.84	0.06	0.16
03-Jun-96	45	57.7	5.6	L 0.0200	0.09	2.3	6.2	6.8	1.16	0.089	4.57	11.5	0.55	1.77	0.02	L 0.0100
30-Oct-96	75	53.5	9.4	0.02	0.15	2.9	6.4	6	1.07	0.23	3.08	8.42	0.45	1.66	0.05	L 0.0100
30-May-97	45	50.2	6.2	0.03	0.19	2.3	6.2	5.65	0.97	0.12	3.15	9.58	0.5	1.55	0.01	L 0.0100

30-May-97	45	50.3	6.1	L 0.0200	0.17	2.4	6.2	5.59	0.96	0.11	3.1	9.63	0.49	1.53	0.01	L 0.0100
31-Oct-97	15	55.6	4.8	L 0.0200	0.09	3.5	6.4	6.34	1.1	0.024	3.37	10	0.56	1.69	0.02	0.11
11-May-98	45	50.1	6.6	L 0.0200	0.15	2.97	6.2	5.4	1	0.11	3.73	9.16	0.5	1.66	0.03	0.13
19-Oct-98	35	53.8	6.2	L 0.0200	0.16	3.33	6.54	5.97	1.07	0.077	4.13	9.78	0.52	1.75	0.04	0.2
26-May-99	27	56.2	5.7	L 0.0200	0.07	2.86	6.37	6.31	1.17	0.072	4.08	9.83	0.57	1.83	0.02	0.08
07-Oct-99	26	56.7	6.6	L 0.0200	0.1	3.58	6.43	6.65	1.22	0.0441	3.97	10.4	0.55	1.8	0.0967	0.185
16-May-00	32	60.2	6.8	0.03	0.14	1.62	6.02	6.42	1.22	0.0863	3.99	11.4	0.49	1.87	0.00918	0.092
18-Sep-00	16	62.2	4.4	L 0.0200	0.1	3.8	6.7	7.19	1.31	0.0212	3.95	11.9	0.57	1.93	0.0367	0.06

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:24:50

Allen Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
None (into ocean)	NS01EA0011	43 56 47	66 56 47

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	93.0	0.95	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
6.8	1.6	1.0	0.0	0.0

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	YARMOUTH, ASPOTOGAN & DANESVILLE SANDY LOAMS
COVER	SPRUCE, FIR, BIRCH, MAPLE, POPLAR, HEMLOCK. BLACK SPRUCE, TAMARACK, SPHAGNUM IN POORLY DRAINED AREAS
FISH	NOT SAMPLED
PHYTOPLANKTON	SYNURA UVELLA, CLOSTERIDIUM GRACILE, DICTOSPHAERIUM EHRENBERGIANUM, GONIUM PECTORALE
ZOOPLANKTON	KERATELLA COCHLEARIS, CYCLOPOID NAUPLII, CYCLOPOID COPEPODS

Allens Pond Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	10	96	4.9	0.03	0.15	4.4	6.7	11.3		0.075	5.5	20	0.8	2.8	L 0.0100	0.06
18-Oct-83	L 5.0000	93	5.6	0.07	0.17	4.4	6.1	11.9	1.6	L 0.0100	6	20	0.9	2.6	0.02	0.023
02-May-84	20	96	5.7	0.06	0.13	3.8	6.2	11.3	1.7	0.088	5.8	21	0.7	2.7	0.01	0.06
02-May-84	20	96	6	0.06	0.12	3.8	6.3	11.4	1.7		6	21	0.7	2.7		
02-May-84	20	96	5.4	0.06	0.14	3.8	6.2	10.8	1.7	0.088	6	21	0.7	2.7	0.01	0.07
16-Oct-84	5	94	5.4	L 0.0100	0.12	5.8	7	11.3	1.7	L 0.0100	5.1	18	0.75	2.8	0.01	0.022
02-Jun-85	5	114	5	0.02	0.13	5.1	6.8	13.7	2.2	0.05	6.1	26	0.9	3	0.01	0.034
22-Oct-85	10	113	4.6	L 0.0100	0.1	6.1	6.8	14	2.1	0.01	6	25	0.93	3.2	0.014	0.022
27-May-86	5	113	4.1	0.07	0.17	4.8	6.7	13.6	2	0.05	5.46	24.9	0.84	3.2	0.01	0.035
27-May-86	5	113	4.5	0.06	0.17	5.2	6.7	13.6	2	0.04	5.82	25.2	0.85	3.2	L 0.0100	0.035
27-May-86	5	113	4.4	0.06	0.17	4.9	6.8	13.7	2	0.04	5.86	25	0.86	3.2	0.01	0.035

21-Oct-86	5	110	5.3	0.01	0.24	6.1	6.9	12.9	1.9	0.02	5.7	24.4	0.86	3.1	0.01	0.06
20-May-87	20	109	4.2	0.06	0.11	5.4	6.8	12.4	1.9	0.052	5.9	23	0.87	3.2	0.02	0.08
07-Oct-87	5	110	4.4	L 0.0100	L 0.1000	6.4	6.9	13.9	1.9	0.017	4.9	24.5	0.86	3.3	0.02	0.036
21-May-88	10	101	5	L 0.0100	L 0.1000	5	6.4	12.4	1.7	0.053	4.4	21.7	0.91	3	L 0.0100	0.08
22-Nov-88	10	99	4.4	L 0.0100	0.13	6.8	6.6	13	1.8	0.046	4.8	20.6	0.89	3	0.01	0.06
24-May-89	20	100	4.7	0.01	0.15	5.3	6.6	12.8	1.6	0.045	4.6	21.3	1.4	2.9	0.03	0.05
24-Oct-89	5	105	3.4	0.01	0.22	6.4	6.7	12	1.8	0.01	5.3	22	1	3.2	L 0.0100	0.024

Churchill Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
into Darling Lake	NS01EA0014	43 59 26	66 08 21

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	50.0	190.7	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.0	1.0	0.7	0.0	0.0

GEOLOGY	HALIFAX SLATE, SCHIST, MINOR QUARTZITE
SOILS	YARMOUTH SANDY LOAM
COVER	SPRUCE, FIR, BIRCH, MAPLE, POPLAR
FISH	NOT SAMPLED
PHYTOPLANKTON	APHANOTHECE CASTAGNII, MERISMOPEDIA TENUISSIMA, CYCLOTELLA KUETZINGIANA, TETRASTRUM STAUROGENIAEFORME, OOCYSTIS LACUSTRUS, CHLOROCOCCUM LUMICOLA
ZOOPLANKTON	BOSMINA LONGIROSTRIS, CYCLOPOID NAUPLII, CYCLOPOID COPEPODS

Churchill Lake

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L		MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	20	86	5.5	L 0.0100	0.15	6.4	6.7	9.8		0.075	5	15	0.8	3.2	0.01	0.12
18-Oct-83	5	88	5.9	0.06	0.16	8.1	6.1	10.4	1.6	0.01	4.5	18	1	2.9	0.04	0.08
02-May-84	20	87	5.6	0.04	0.13	4.1	6.2	10.2	1.5	0.088	5.5	19	0.8	2.7	0.02	0.07
16-Oct-84	10	83	5.4	L 0.0100	0.15	7.5	7.1	9.5	1.5	L 0.0100	4.1	13.8	0.9	2.8	0.04	0.11
02-Jun-85	5	107	5.1	0.06	0.19	6	6.9	11.7	2	0.04	5.6	23	1	3.2	0.03	0.08
22-Oct-85	10	106	4.8	0.02	0.13	7.3	7	12.5	2.1	L 0.0100	5.3	22	1.12	3.3	0.033	0.059
22-Oct-85	10	106	4.3	L 0.0100	0.13	7.3	7	12.5	2.1	L 0.0100	5.5	22	1.12	3.3	0.036	0.054
22-Oct-85	10	106	4.9	L 0.0100	0.13	7.4	7	12.5	2.1	L 0.0100	5.3	22	1.12	3.3	0.037	0.053
27-May-86	5	110	4.2	0.04	0.17	5.5	6.7	12.7	1.9	0.04	5.62	23.5	0.99	3.3	0.03	0.07
21-Oct-86	5	104	5.8	0.01	0.15	7.5	6.9	11.8	1.9	0.019	5.2	21.2	1.01	3.3	0.03	0.07
20-May-87	20	98	4.4	0.04	0.12	5.6	6.7	11	1.7	0.06	5.3	20	0.91	3	0.04	0.12
20-May-87	20	97	4.2	0.05	0.12	5.7	6.6	11	1.7	0.057	5.3	20	0.92	3.1	0.03	0.13
20-May-87	20	98	4.2	0.01	0.12	5.7	6.5	11	1.7	0.062	5.3	20	0.91	3	0.04	0.13
07-Oct-87	5	105	4.7	L 0.0100	0.13	7.5	7	13.1	1.8	0.016	4.6	22.5	1.1	3.5	0.03	0.07
21-May-88	20	98	4.8	L 0.0100	0.1	5.9	6.5	11.7	1.7	0.043	5.7	20.5	1	3.1	0.02	0.08
24-May-89	20	99	4.2	0.05	0.11	6.3	6.7	12.7	1.6	0.035	4.4	19.5	1.4	3.1	0.04	0.09
24-Oct-89	5	112	3.6	L 0.0100	0.24	8.6	6.7	13.1	1.6	0.01	5.4	23	1.2	3.7	0.03	

Darling Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Coggins Brook	NS01EA0016	43 58 05	66 07 16

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
15	140.0	194.6	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
14.5	1.6	1.0	0.0	0.0

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	YARMOUTH, DANESVILLE, DEERFIELD SANDY LOAMS
COVER	SPRUCE, FIR, BIRCH, MAPLE, POPLAR
FISH	NOT SAMPLED
PHYTOPLANKTON	GLEOTRICHA ECHINULATA, COCCONEIS PLACENTULA, ANHISTRODESMUS FALCATUS V. ACICULARIS
ZOOPLANKTON	KERATELLA CRASSA, CYCLOPOID NAUPLII, CYCLOPOID COPEPODS

Darling Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_TOT	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L		MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	35	71	6.3	0.01	0.14		6.3	8.5	1.2	0.14	5	13	0.6	2.1	0.02	0.1
18-Oct-83	5	75	6	0.02	0.14	5.7	6	9.6	1.3	0.036	4.8	13.5	1.1	2	0.04	0.16
02-May-84	50	68	9.2	L 0.0100	0.1	2.2	5.9	8.3	1.1	0.16	4.4	13.9	0.6	1.8	0.02	0.1
16-Oct-84	10	70	6.1	L 0.0100	0.15	5.4	7	8.6	1.2	0.03	3.5	12.3	0.62	1.9	0.04	0.24
16-Oct-84	10	70	5.5	0.03	0.17	5.5	7	8.6	1.2	0.026	3.5	11.8	0.62	1.9	0.03	0.27
16-Oct-84	10	70	5.7	L 0.0100	0.15	5.4	7	8.5	1.2	0.03	3.5	12.5	0.62	1.8	0.04	0.27
02-Jun-85	20	92	6.6	L 0.0100	0.14	2.6	6.3	10.7	1.7	0.1	5.8	21	0.77	2.4	0.02	0.15
22-Oct-85	20	89	5.3	0.02	0.13	4.4	6.7	11.3	1.6	0.021	4.7	20	0.81	2.1	0.035	0.24
27-May-86	20	96	5.8	L 0.0100	0.15	2.9	6.3	12	1.6	0.08	5.18	22.1	0.74	2.4	0.05	0.16
21-Oct-86	50	81	10	0.03	0.15	3.8	6.4	9.8	1.4	0.12	4	17	0.77	2.2	0.06	0.36
20-May-87	25	95	5.1	L 0.0100	L 0.1000	2.6	6.2	11.6	1.4	0.097	5.2	21	0.73	2.3	0.02	0.13
07-Oct-87	20	91	6.5	L 0.0100	0.1	3.8	6.7	12	1.5	0.078	4.5	20	0.75	2.3	0.03	0.13
07-Oct-87	20	90	6.4	L 0.0100	L 0.1000	3.7	6.4	12	1.5	0.075	4.5	20	0.75	2.3	0.03	0.14
07-Oct-87	20	91	6.7	L 0.0100	L 0.1000	3.7	6.5	12	1.5	0.08	4.5	20.1	0.75	2.3	0.03	0.14
21-May-					L											

88	10	91	4.6	L 0.0100	0.1000	3.2	6.4	11.3	1.4	0.052	5.1	19.9	0.8	2.4	0.03	0.06
22-Nov-88	65	74	9.6	L 0.0100	0.14	4.3	6.3	9.2	1.4	0.18	3.9	15.3	0.84	2.2	0.02	0.34
24-May-89	30	83	5.3	0.01	0.11	3.4	6.4	11.1	1.3	0.07	4.3	16.5	1.2	2.2	0.08	0.15
24-Oct-89	10	95	3.9	0.01	0.24	4.8	6.5	11.5	1.5	0.032	5.4	20	0.99	2.5	0.03	0.18

Snare Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Tusket	NS01EA0019	44 06 20	65 58 31

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
61	64.71	9.10	827827	8.79

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
5.4	1.30	0.40	6.69	1.28

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX & DANESVILLE SANDY LOAMS. SMALL AREAS OF SWAMP & PEAT BOG
COVER	RED & WHITE SPRUCE, PINE, HEMLOCK, MAPLE, BIRCH, OAK, FIR, TAMARACK, ALDER. SWAMP WITH TAMARACK & BLACK SPRUCE.
FISH	NOT SAMPLED
PHYTOPLANKTON	DINOBRION SERTULARIA, COELASTRUM MICROSPORUM
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA TIBICIENS, CYCLOPOID COPEPODS

Snare Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	130	35	10.3	L 0.0100	0.11	-0.7	4.8	3.6	0.56	0.23	3	4.9	0.1	0.7	0.01	0.24
18-Oct-83	200	36	14	0.01	0.19	0.1	5	4.1	0.66	0.26	3.2	4.7	0.2	0.65	0.02	0.4
02-May-84	90	36	9.4	L 0.0100	0.1	-0.4	4.8	3.6	0.55	0.17	3	5.6	0.2	0.63	0.02	0.14
16-Oct-84	120	38	11	0.01	0.17	0	5	4.3	0.67	0.26	3	6.3	0.25	0.67	0.02	0.35
02-Jun-85	90	46	10	L 0.0100	0.1	-0.7	4.7	4.5	1	0.23	3.6	7.8	0.3	0.65	0.02	0.24
22-Oct-85	140	43	11	L 0.0100	0.13	-0.1	5	4.9	0.75	0.22	3.1	7.7	0.31	0.76	0.021	0.35
27-May-86	90	42	7	L 0.0100	0.14	-0.3	4.8	4.5	0.68	0.19	3	7.1	0.29	0.72	0.02	0.22
21-Oct-86	180	41	13	0.04	0.16	-0.2	4.9	4.5	0.71	0.38	2.7	6.8	0.23	0.77	0.02	0.45
20-May-87	100	38	6.9	L 0.0100	L 0.1000	-0.4	4.8	3.9	0.58	0.21	3.1	6.7	0.18	0.64	0.02	0.23
07-Oct-87	100	45	10	L 0.0100	L 0.1000	-0.6	4.8	4.9	0.83	0.27	4.2	6.6	0.28	0.83	0.03	0.3

21-May-88	100	41	7.1	L 0.0100	L 0.1000	0.1	4.9	4.4	0.72	0.19	3.9	6.9	0.27	0.72	0.01	0.17
22-Nov-88	150	42	15	L 0.0100	0.15	-0.2	4.7	4.3	0.77	0.26	2.7	6.5	0.31	0.85	0.02	0.41
24-May-89	110	37	7.3	L 0.0100	0.23	-0.6	4.8	4.1	0.57	0.17	3.1	5.4	0.22	0.51	0.01	0.2
24-Oct-89	110	42	6.5	L 0.0100	0.33	-0.4	5	4.6	0.92	0.17	4.7	6.9	0.37	0.89	0.02	0.26
15-Aug-90	110	36	9.9	0.06	0.27	0.3	4.9	4.2	0.61	0.24	3	5.5	0.24	0.56	L 0.0100	0.43
30-Oct-90	110	46	9.7	L 0.0500	0.26	-0.1	4.8	4.9	0.82	0.23	2.4	6.3	0.38	0.67	0.02	0.3
31-May-91	110	34	6.9	0.01	0.21	-0.4	4.8	3.8	0.53	0.22	3.6	5.5	0.29	0.57	0.01	0.22
03-Jun-92	70	38	5	L 0.0100	0.13	-0.5	4.9	4.3	0.63	0.14	2.8	7.2	0.3	0.7	0.02	0.19
22-Oct-92	95	40	5.1	L 0.0200	0.27	-0.4	5	5	0.68	0.18	3.5	7.5	0.39	0.66	0.03	0.29
05-Jul-93	110	35.7	8.5	L 0.0100	0.3	-0.1	4.9	3.3	0.56	0.22	2.7	6.6	0.25	0.7	0.02	0.34
19-Oct-93	65	40	8.4	L 0.0200	0.23	-0.3	5	5	0.77	0.2	4.4	7.2	0.4	0.75	0.02	0.31
03-Nov-94	85	40	10.1	L 0.0200	0.16	-0.3	4.8	4.7	0.73	0.24	3.4	11.6	0.32	0.7	0.01	0.27
25-May-95	70	50	6.5	L 0.0200	0.1	-1.2	4.7	5.2	0.85	0.18	3.7	8.9	0.32	0.78	0.02	0.17
17-																

Oct-95	110	46	9.2	L 0.0200	0.11	-0.2	4.8	5.6	0.843	0.27	3.63	8.41	0.32	0.732	0.02	0.35
03-Jun-96	60	35.8	10	L 0.0200	0.07	-0.8	4.7	4.2	0.54	0.22	3	5.8	0.25	0.53	L 0.0100	0.22
30-Oct-96	200	35.8	17.5	L 0.0200	0.15	0.2	4.7	3.6	0.57	0.39	1.83	4.74	0.19	0.62	0.01	0.52
30-May-97	95	30.4	8.1	L 0.0200	0.12	-0.38	4.8	3.18	0.4	0.25	2.33	4.41	0.28	0.41	0.01	0.2
31-Oct-97	60	38.3	5.7	L 0.0200	0.12	-0.45	4.9	4.15	0.63	0.14	4.29	5.44	0.31	0.53	0.01	0.2
12-May-98	105	33.1	10	L 0.0200	0.14	-0.17	4.8	3.18	0.53	0.24	3.38	4.23	0.25	0.57	0.01	0.2
20-Oct-98	150	44.4	16.7	L 0.0200	0.17	-0.67	4.54	3.48	0.82	0.4	4.14	5.52	0.35	0.79	0.02	0.34
26-May-99	91	39.4	8.4	L 0.0200	0.08	-0.56	4.69	3.99	0.67	0.23	3.38	6.13	0.26	0.67	0.01	0.2
07-Oct-99	107	48.7	13.7	L 0.0200	0.15	-0.57	4.58	5.02	0.91	0.286	4.87	7.43	0.36	0.81	0.016	0.348
16-May-00	91	45.2	10.2	L 0.0200	0.1	-1.42	4.65	4.61	0.71	0.223	3.05	7.43	0.28	0.73	0.0115	0.203
18-Sep-00	53	45.8	5	L 0.0200	0.07	-0.97	4.79	5.17	0.74	0.156	3.91	8.24	0.32	0.62	0.0144	0.19

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:19:30

Bird Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Tusket	NS01EA0020	43 58 23	65 56 39

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
61	30.0	1.2	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.60	0.8	0.3	0.0	0.0

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX & YARMOUTH SANDY LOAMS
COVER	RED & WHITE SPRUCE, PINE, HEMLOCK, MAPLE, BIRCH, OAK, FIR, POPLAR
FISH	NOT SAMPLED
PHYTOPLANKTON	APHANOCAPSA RIVULARIS, COELOSPHAERIUM KUTZINGIANUM, ASTERIONELLA FORMOSA, CHLORELLA ELLIPSOIDIA
ZOOPLANKTON	KERATELLA TAUROCEPHALA, EUBOSMINA LONGISPINA, CALANOID COPEPODS

Bird Lake Chemistry

	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ANC	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L		PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
26-May-83	5	45	1.8	0.01	0.09		6.5	4.7	0.86	0.045	4.1	7.6	0.3	1.75	L 0.0100	0.013
18-Oct-83	L 5.0000	46	2.6	0.01	0.1	3.5	5.9	4.9	0.97	L 0.0100	4.2	7.5	0.3	1.7	0.01	0.006
02-May-84	5	44	2.6	L 0.0100	L 0.0500	2.5	6.2	4.6	0.87	0.05	3.9	7.9	0.3	1.5	0.01	0.01
16-Oct-84	L 5.0000	46	2.2	L 0.0100	L 0.1000	3.1	6.7	4.7	0.96	L 0.0100	4	7.1	0.27	1.6	0.01	0.01
02-Jun-85	L 5.0000	49	2.8	L 0.0100	L 0.1000	3	6.6	4.9	1.5	0.05	3.9	9.1	0.3	1.6	0.01	0.017
02-Jun-85	L 5.0000	49	3	L 0.0100	L 0.1000	2.9	6.6	4.9	1.5	0.02	4.1	9.2	0.3	1.6	0.01	0.015
02-Jun-85	L 5.0000	49	2.6	L 0.0100	L 0.1000	2.8	6.6	4.9	1.5	0.02	4.1	9.2	0.3	1.6	0.01	0.014
22-Oct-85	L 5.0000	49	2.7	L 0.0100	L 0.1000	3.7	6.5	5.1	1.1	L 0.0100	4.3	8.7	0.24	1.8	0.011	0.007
27-May-86	5	48	2.6	L 0.0100	0.11	3	6.5	4.8	1	0.03	3.81	8.7	0.25	1.8	0.02	0.007
21-Oct-86	5	48	3.9	L 0.0100	L 0.1000	3.4	6.6	4.9	1	0.015	3.9	8.4	0.29	1.8	0.02	0.015
20-May-87	5	46	1.9	0.01	L 0.1000	3.2	6.6	4.5	0.96	0.033	4.3	8	0.41	1.7	L 0.0100	0.017
07-Oct-87	L 5.0000	46	2.4	L 0.0100	L 0.1000	3.5	6.7	4.9	1	0.016	3.9	7.7	0.28	1.7	0.02	0.01
21-May-88	L 5.0000	45	2.5	L 0.0100	L 0.1000	3.2	6.4	4.7	0.98	0.03	4	7.8	0.27	1.7	L 0.0100	0.01
22-Nov-88	5	45	3.4	L 0.0100	0.1	3.7	6.4	4.5	1	0.036	3.9	7.4	0.28	1.7	L 0.0100	0.021

24-May-89	5	44	2.8	L 0.0100	0.11	2.9	6.6	4.7	0.92	0.035	3.7	7.1	0.21	1.6	0.01	0.014
24-Oct-89	5	47	1.9	L 0.0100	0.18	3.6	6.5	4.8	0.92	L 0.0100	4.2	8.1	0.35	1.8	L 0.0100	0.011
05-Jun-90	70	48.8	5.7	L 0.0100	0.17	0.6	5.3	5.7	0.83	0.2	4.2	8.8	0.4	1.2	0.03	0.21
30-Oct-90	L 5.0000	48	2.2	L 0.0500	0.09	3.5	6.6	5	1	0.016	4	7.6	0.3	1.6	0.01	0.011
31-May-91	5	41	2	L 0.0100	0.1	2.9	6.5	4.8	0.9	0.028	4.2	7.1	0.3	1.5	L 0.0100	0.12
03-Jun-92	5	42	2.1	L 0.0100	0.13	3.1	6.5	4.6	0.87	0.032	3.3	7.9	0.27	1.6	0.02	0.01
22-Oct-92	L 5.0000	42	1.8	L 0.0200	0.1	3.2	6.7	4.9	0.95	L 0.0100	3.9	7.4	0.3	1.5	0.02	0.008
05-Jul-93	L 5.0000	42.4	1.7	L 0.0100	0.1	3	6.6	4.8	0.94	0.026	3.7	8.2	0.25	1.6	L 0.0100	0.007
19-Oct-93	L 5.0000	45	2.7	L 0.0200	0.12	3.7	6.6	5	1	0.011	3.6	8.3	0.33	1.6	0.01	0.008
03-Nov-94	10	40	3	L 0.0200	0.05	3	6.5	4.8	0.9	0.019	3.5	7.6	0.3	1.5	0.01	0.014
25-May-95	10	44	2.9	L 0.0200	0.07	2.5	6.4	5	0.87	0.038	3.5	8.4	0.3	1.47	0.02	0.016
17-Oct-95	5	44	3.5	L 0.0200	0.05	3.3	6.6	5.1	0.967	0.016	3.11	7.95	0.33	1.55	0.02	0.016
03-Jun-96	45	41.6	2.1	L 0.0200	0.04	2.5	6.4	4.7	0.84	0.031	3.24	7.61	0.29	1.51	L 0.0100	0.01
30-Oct-96	15	40.4	4.5	L 0.0200	0.07	3.2	6.4	4.2	0.81	0.04	2.76	6.45	0.23	1.48	0.01	0.03
30-May-97	10	35.4	3.1	L 0.0200	0.09	2.4	6.5	3.92	0.7	0.045	2.46	6.2	0.24	1.22	L 0.0100	0.017
31-Oct-97	L 5.0000	39	2.2	L 0.0200	0.05	3.3	6.5	4.16	0.81	0.01	2.79	6.32	0.27	1.41	0.01	0.01
11-May-98	5	36	2.9	L 0.0200	0.08	3.03	6.4	3.64	0.73	0.04	3	5.89	0.25	1.33	L 0.0100	0.014
19-Oct-98	10	38.2	3	L 0.0200	0.07	3.11	6.57	3.93	0.82	0.057	3.4	6.25	0.25	1.49	0.02	0.04
26-May-	8	40	2.8	L 0.0200	0.04	2.78	6.47	4.21	0.85	0.028	3.3	6.67	0.25	1.57	L 0.0100	L 0.0200

99																	
07-Oct-99	5		41.2	2.7	L 0.0200	0.07	3.2	6.61	4.37	0.9	0.0175	3.49	7.24	0.26	1.55	0.0194	L 0.0500
16-May-00	4		43.3	2.5	L 0.0200	0.07	1.91	6.54	4.8	0.9	0.0352	3.21	7.94	0.26	1.51	0.00747	L 0.0500
18-Sep-00	5		45.2	1.8	L 0.0200	0.05	3.46	6.83	4.93	0.97	0.00918	3.33	7.99	0.29	1.64	0.0167	L 0.0500

Kejimkujik Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Mersey River	NS01ED0007	44 23 00	65 15 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
90	2643	682	106017	5.45

Shorelength	Max. Eff. Length	Max Eff. Width	Max. Depth	Mean Depth
na	7.32	na	19.2	4.35

GEOLOGY	GOLDENVILLE GREYWACKE, QUARTZITE, GNEISS, MINOR SLATE
SOILS	HALIFAX SANDY LOAMS
COVER	FIR, SPRUCE, SOME MAPLE, BIRCH, OAK, PINE
FISH	NA
PHYTOPLANKTON	NA
ZOOPLANKTON	NA

Kejimkujik Lake Chemistry

Keji Lake Station ED0007	COLOUR_AP	SP_COND	DOC	NO3/NO2 DIS	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS
	REL UNITS	USIE/CM	Mg/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
30-Apr-82	50	32	8	L 0.0100	0.32	-0.6	4.8	3	0.45	0.11	2.3	5	0.2
26-May-82	40	30	4.4	L 0.0100	0.72	-0.2	4.9	3	0.44	0.15	2.3	4.5	0.4
23-Jun-82	50	29	3.8	L 0.0100	0.17	-0.1	4.9	2.9	0.41	0.13	2.2	5	0.2
28-Jul-82	60	29	5.4	0.01	0.57	0	5	3	0.41	0.09	2.3	5	0.3
29-Jul-82	100	32	6	L 0.0100	0.52	-0.2	4.5	2.6	0.31	0.14	2.1	4.2	0.2
30-Sep-82	40	29	4	0.01	0.16	0.1	5.1	3.1	0.4	0.02	2.3	4.7	0.3
14-Oct-82	45	29	5.6	L 0.0100	0.25	0.1	5.2	3.1	0.39	0.13	2.3	4.8	0.2
18-Nov-82	75	28	13	0.01	0.16	0.1	5.2	3.4	0.46	0.12	2.4	4.5	0.2
06-Apr-83	70	30	8.8	L 0.0100	0.11	-0.5	4.8	2.9	0.5	0.18	2.5	4.3	0.2
28-Apr-	70	28	5.6	L 0.0100	0.09	-0.3	4.9	2.8	0.4	0.16	2.7	4.2	0.3

83													
23-May-83	80	28	6.5	L 0.0100	0.17	-0.2	4.9	2.9	0.42	0.15	2.4	4.2	0.2
26-May-83	80	28	7.4	L 0.0100	0.11	-0.2	5	2.7	0.46	0.17	2.1	4.2	0.2
31-May-83	100	27	7.4	L 0.0100	0.12	-0.2	4.9	2.8	0.45	0.15	2.1	4.1	0.2
23-Jun-83	100	27	9.1	0.01	0.1	-0.2	4.9	2.8	0.37	0.23	2	3.8	0.2
09-Jul-83	80	27	7.2	L 0.0100	0.09	0.1	5.1	2.9	0.5	0.17	2.2	4.2	0.2
28-Jul-83	80	27	8.2	0.03	0.14	0.2	5.2	3.2	0.37	0.19	2.1	4.3	0.5
23-Aug-83	100	27	6.5	0.01		0.1	5.3	2.8	0.4	0.16	2.3	4.2	L 0.1000
24-Sep-83	60	26	6.6	L 0.0100		0.3	5.3	3	0.4	0.15	2.1	4.2	0.2
18-Oct-83	75	26	6.6	0.02	0.12	0.2	5.3	3	0.4	0.16	2.3	4.2	0.2
04-Nov-83	60	26	6.9	L 0.0100		0.3	5.4	3	0.4	0.13	2.1	4.4	0.2
08-Nov-83	70	26	6.8	0.02		0.5	5.4	3	0.45	0.16	2	4.4	0.2
03-May-84	70	29	7.1	0.01	0.05	-0.2	4.8	2.9	0.45	0.11	2.4	4.4	0.2
27-Jul-84	80	27	8.5	0.01	0.09	0.2	5.2	3	0.43		2.1	4.6	0.25
05-Aug-84	100	27	7.9	L 0.0100	0.1	0.4	5.3	2.9	0.43	0.17	2.1	4.6	0.25
17-Oct-84	100	27	8.3	0.02	0.17	0.3	5.3	3.1	0.47	0.17	2	4.5	0.27

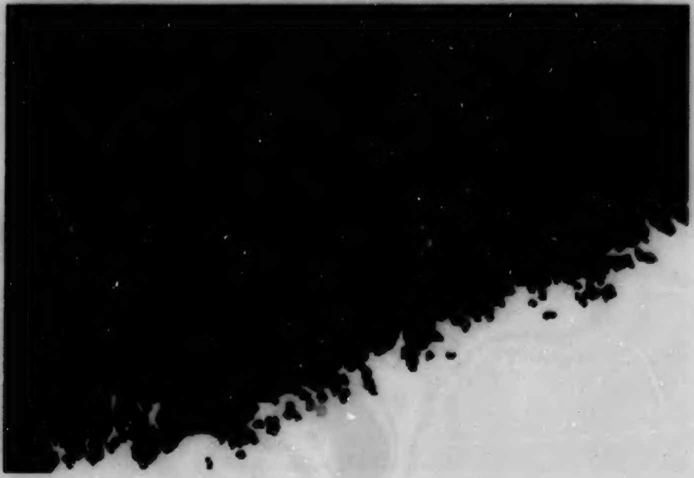
03-Jun-85	60	31	7.4	0.01	L 0.1000	-0.2	4.9	3	0.5	0.12	2.6	5.1	0.25
23-Oct-85	60	30	6.7	L 0.0100	0.11	0.2	5.2	3.3	0.48	0.15	2.1	4.9	0.24
28-May-86	80	29	6.4	L 0.0100	0.12	-0.2	4.9	2.7	0.42	0.16	2.5	4.7	0.24
13-Jul-86	70	29	7.4	L 0.0100	L 0.1000	-0.1	5.1	2.9	0.44	0.18	2.1	4.5	0.23
06-Aug-86	70	29	8.2	0.01	L 0.1000	0.4	5.1	2.9	0.43	0.16	2.3	5.2	0.22
04-Sep-86	120	29	13	0.02	0.15	-0.1	4.9	2.9	0.44	0.23	2.3	4.4	0.28
21-Oct-86	120	29	13	0.03	0.14	0.1	5	3	0.47	0.23	1.9	4.5	0.25
29-Nov-86	55	31	7.6	L 0.0100	L 0.1000	-0.4	4.9	2.8	0.44		2.4	5	0.26
20-May-87	90	27	6.6	0.01	L 0.1000	-0.3	5	2.8	0.38	0.15	2.3	4.7	0.26
07-Oct-87	45	27	4.6	L 0.0100	L 0.1000	0.1	5.3	2.9	0.41	0.14	2.3	4.7	0.31
21-May-88	80	28	5.5	L 0.0100	L 0.1000	0.1	5	2.9	0.41	0.14	2.3	4.3	0.24
23-Nov-88	120	30	13	L 0.0100	0.11	0.1	4.9	3	0.53	0.21	2.5	4.1	0.3
24-May-89	70	26	4.7	L 0.0100	L 0.1000	-0.1	5	2.6	0.36	0.11	2.6	4.1	0.31
24-Oct-89	70	28	5.1	L 0.0100	0.32	0.4	5.4	2.9	0.46	0.13	2.7	4.2	0.3
05-Jun-90	70	27.8	6.1	0.01	0.13	-0.2	4.9	2.8	0.37	0.13	2.3	3.8	0.29
19-Jun-	70	26.5	6.1	L 0.0100	0.2	1.6	5.8	2.8	0.39	0.14	2.5	3.9	0.32

90													
30-Oct-90	80	27	6.4	0.01	0.17	0.5	5.3	3	0.38	0.17	2.5	4	0.27
31-May-91	75	25	5.6	L 0.0100	0.14	-0.1	5	2.7	0.35	0.15	2.3	3.8	0.29
17-Oct-91	55	27	7.6	L 0.0100	0.23	0.5	5.2	3	0.46	0.2	2.5	4.7	0.33
03-Jun-92	65	25	3.6	L 0.0100	0.09	-0.6	5.1	2.8	0.37	0.12	1.4	4.6	0.29
01-Oct-92	30	25	3.3	L 0.0200	0.15	-0.1	5.2	3	0.35	0.12	2.4	4.4	0.28
22-Oct-92	60	25	3	L 0.0200	0.13	-0.3	5.3	3.1	0.35	0.11	2.5	4.4	0.3
05-Jul-93	60	28.1	5.6	L 0.0100	0.15	0.1	5	3.2	0.42	0.18	2.2	4.6	0.29
20-Aug-93	45	27	5	L 0.0200	0.13	0.1	5.2	3.3	0.43	0.14	2.3	5	0.29
19-Oct-93	45	26	4.2	L 0.0200	0.22	0.3	5.2	3.5	0.41	0.14	2.5	5.2	0.3
28-May-94	65	26	7.7	L 0.0200	0.12	-0.6	4.9	2.7	0.31	0.14	2	3.7	0.27
21-Jul-94	70	25	7.9	L 0.0200	0.1	-0.8	5.1	3.2	0.31	0.16	1.6	3.7	0.7
03-Nov-94	60	24	6.4	L 0.0200	0.07	0.1	5.1	3	0.36	0.14	2	4.2	0.26
25-May-95	75	31	7	L 0.0200	0.05	-0.9	4.8	3.2	0.4	0.17	2.16	5.16	0.28
16-Oct-95	50	29	5.5	L 0.0200	0.07	0.5	5.3	3.7	0.421	0.13	2.26	5.37	0.31
03-Jun-96	25	28.6	7.4	L 0.0200	0.06	-0.6	4.8	3.1	0.36	0.16	2.19	4.55	0.26

12-Sep-96	85	27.6	8.3	L 0.0200	0.12	0.5	5.3	3.2	0.4	0.25	2.04	4.66	0.2
16-Oct-96	105	29	11.9	L 0.0200	0.13	0.5	5	3.3	0.42	0.27	1.7	4.3	0.23
27-May-97	90	24.6	8	L 0.0200	0.08	-0.35	4.8	2.41	0.24	0.134	1.51	3.36	0.32
29-Oct-97	45	24.9	4.3	L 0.0200	0.08	0.07	5.3	2.81	0.32	0.12	2.12	4.16	0.28
10-May-98	70	27.2	7.7	L 0.0200	0.1	0.22	5	2.67	0.36	0.16	2.24	3.79	0.22
15-Oct-98	65	27.7	7.5	L 0.0200	0.09	0.2	5.09	2.99	0.4	0.18	2.45	4	0.26
26-May-99	69	26	6.8	L 0.0200	0.08	0.11	4.95	2.84	0.37	0.16	2.15	4.02	0.23
07-Oct-99	50	27.8	7	L 0.0200	0.09	0.38	5.07	3.09	0.41	0.14	2.39	4.35	0.25
16-May-00	71	32.1	8.2	L 0.0200	0.07	-1.14	4.79	3.26	0.43	0.16	2.04	5.19	0.2
18-Sep-00	47	30.3	4.3	0.02	0.04	-0.35	5.14	3.57	0.43	0.13	2.3	5.61	0.24

Select Area :

Murphy Lake
Salmon Lake
Kelly Lake
Hooper Pond W
Nowlin Lake
Paul Mooris Lake
Halfway Brook Lake



Murphy Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Halfway Brook	NS01EN0016	44 53 30	62 27 30

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
30	0.78	29.47	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
0.36	0.13	0.06	0.0	0.0

GEOLOGY	PRECAMBRIAN SLATES & QUARTZITE
SOILS	DANESVILLE & HALIFAX SANDY LOAMS. SMALL AREAS OF WOLFVILLE SANDY LOAM & PEAT
COVER	SPRUCE, BALSAM FIR, HEMLOCK, RED MAPLE, PINE, BIRCH. UNDERGROWTH OF LABRADOR TEA,
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Salmon River Big Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Salmon	NS01EN0027	44 58 59	62 25 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
46	305.3	81.66	6603740	12.37

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
11.67.0	3.27	2.32	7.47	2.16

GEOLOGY	PRECAMBRIAN QUARTZITE AND SLATE
SOILS	HALIFAX & DANESVILLE SANDY LOAMS, PEAT, SMALL AREAS OF BRIDGEWATER & WOLFVILLE SANDY LOAMS
COVER	CHIEFLY RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, MAPLE, BIRCH. UNDERGROWTH OF LABRADOR TEA, LAMBKILL, BLUEBERRY
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Salmon River Big lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	45	19	4.2	L 0.0100	0.13	0.2	5.2	1.8	0.27	0.14	1.8	2.2	0.18	0.67	0.06	0.2
30-Oct-90	80	29	8.6	L 0.0500	0.16	1	5.1	2.6	0.52	0.21	2.1	3.7	0.21	1.2	0.08	0.46
29-May-91	65	18	3.5	L 0.0100	0.12	0.5	5.3	1.9	0.26	0.15	2.3	2.4	0.25	0.66	0.06	0.3
01-Oct-91	120	25	11.5	L 0.0100	0.26	0.9	4.9	2.4	0.43	0.29	2.2	2.7	0.25	1.1	0.08	0.76
04-Jun-92	30	23	2.8	L 0.0100	0.08	0.4	5.6	2.6	0.34	0.085	2.5	4.1	0.19	0.89	0.17	0.16
20-Oct-92	35	25	4.9	L 0.0200	0.19	0.3	5.5	2.6	0.37	0.14	2.6	3.5	0.21	0.9	0.04	0.46
06-Jul-93	30	19.9	4.3	L 0.0100	0.14	0.5	5.4	2.1	0.38	0.15	2	2.8	0.12	0.8	0.06	0.24
20-Oct-93	30	23	7.4	L 0.0200	0.22	1	5.6	2.8	0.43	0.15	2.3	3.8	0.19	1	0.03	0.35
04-Nov-94	40	25	7.7	L 0.0200	0.09	1	5.4	2.9	0.43	0.14	2.2	4.3	0.23	1.1	0.03	0.31
26-May-95	60	22	6.2	L 0.0200	0.06	0.4	5	2.2	0.26	0.15	1.8	4.6	0.25	0.67	0.08	0.21

18-Oct-95	50	23	6.8	L 0.0200	0.07	0.7	5.7	2.7	0.349	0.14	2.01	3.7	0.18	0.811	0.03	0.62
06-Jun-96	35	21.4	6.8	L 0.0200	0.05	-0.2	5.1	2.4	0.28	0.16	1.87	2.99	0.19	0.68	0.05	0.22
28-Oct-96	100	23.8	11.5	L 0.0200	0.13	0.3	5	2.2	0.32	0.25	1.51	3.07	0.16	0.83	0.06	0.44
26-May-97	45	19.9	5.7	L 0.0200	0.08	0.18	5.2	1.85	0.23	0.102	1.62	2.73	0.32	0.5	0.05	0.19
27-Oct-97	25	24.7	4.4	L 0.0200	0.09	0.52	5.8	2.73	0.33	0.081	2.4	3.89	0.2	0.85	0.02	0.38
04-May-98	90	20.7	9.9	L 0.0200	0.08	-0.41	4.9	1.78	0.23	0.2	1.55	2.08	0.16	0.58	0.05	0.32
22-Oct-98	135	26.9	14.5	L 0.0200	0.12	0.15	4.8	2.35	0.41	0.31	1.93	3.08	0.19	1.04	0.06	0.53
27-May-99	29	22.6	5	L 0.0200	0.05	0.18	5.16	2.35	0.3	0.11	1.94	3.37	0.23	0.68	0.05	0.22
08-Oct-99	42	25.7	6.5	L 0.0200	0.1	0.94	5.63	2.93	0.4	0.143	2.3	4.37	0.24	0.93	0.0531	0.631
15-May-00	52	26.3	6.9	L 0.0200	0.05	-0.54	5.1	2.78	0.34	0.146	2.01	4.26	0.26	0.76	0.0593	0.212
19-Sep-00	54	26.6	7.6	L 0.0200	0.07	0.65	5.52	3.06	0.4	0.149	1.8	4.19	0.18	0.91	0.0207	0.4

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 15:14:17

Kelly Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Moser	NS01EN0024	45 03 00	62 19 59

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
85	56.98	2.31	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.89	1.06	1.04	0.0	0.0

GEOLOGY	PRECAMBRIAN QUARTZITE AND SLATE
SOILS	BRIDGEWATER & DANESVILLE SANDY LOAMS, SMALL AREAS OF WOLFVILLE SANDY LOAMS
COVER	RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, MAPLE, BIRCH. UNDERGROWTH OF LABRADOR TEA, LAMBKILL, BLUEBERRY
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Kelly Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	L 5.0000	18.1	1.5	0.01	0.05	0.9	5.8	1.8	0.27	0.05	1.9	2.3	0.13	0.6	0.07	0.06
30-Oct-90	15	21	6	L 0.0500	0.08	0.6	5.9	2	0.34	0.052	2.4	2.9	0.19	0.63	0.1	0.15
29-May-91	10	18	1.6	L 0.0100	0.08	0.5	5.8	2	0.31	0.035	2.3	2.8	0.18	0.6	0.08	0.044
02-Oct-91	L 5.0000	19	1.5	L 0.0100	0.12	1	5.8	2.1	0.33	0.11	2	2.5	0.23	0.64	0.11	0.15
04-Jun-92	10	18	1.2	L 0.0100	0.06	0.7	5.9	2.1	0.34	0.033	2.1	3.3	0.16	0.75	0.1	0.031
20-Oct-92	L 5.0000	20	1.4	L 0.0200	0.12	0.1	5.9	2.2	0.34	0.031	2.6	3.5	0.22	0.64	0.09	0.05
06-Jul-93	5	19.5	1.7	L 0.0100	0.08	0.5	5.8	2.2	0.4	0.042	2.2	3.1	0.16	0.7	0.1	0.05
20-Oct-93	5	18.6	2.9	L 0.0200	0.14	0.6	5.9	2.4	0.35	0.04	2.5	3.6	0.19	0.69	0.08	0.08
04-Nov-94	10	21	3	L 0.0200	0.05	0.5	5.6	2.4	0.37	0.021	2.2	3.8	0.18	0.68	0.09	0.07
26-May-95	10	22	2.7	L 0.0200	0.04	0.5	5.6	2.4	0.32	0.035	2	3.7	0.18	0.65	0.08	0.05

18-Oct-95	10	22	2.9	L 0.0200	0.04	0.9	6	2.6	0.357	0.04	1.97	3.44	0.19	0.626	0.08	0.08
06-Jun-96	45	21.7	1.7	L 0.0200	0.04	0.1	5.7	2.6	0.35	0.045	2.01	3.74	0.18	0.64	0.06	0.04
28-Oct-96	15	22	3	L 0.0200	0.04	0.6	5.8	2.3	0.34	0.055	1.95	3.44	0.14	0.71	0.1	0.09
26-May-97	5	20.4	2.4	L 0.0200	0.05	0.56	5.9	2.2	0.3	0.034	1.75	3.42	0.19	0.55	0.05	0.04
27-Oct-97	L 5.0000	22.1	1.7	L 0.0200	0.04	0.47	5.9	2.32	0.32	0.034	2.17	3.62	0.2	0.69	0.07	0.07
04-May-98	5	19.6	3	L 0.0200	0.05	0.15	5.7	1.95	0.3	0.041	1.99	3.05	0.13	0.58	0.05	0.04
22-Oct-98	10	20	2.5	L 0.0200	0.06	0.54	5.83	2.08	0.31	0.054	2.1	2.88	0.12	0.64	0.09	0.08
27-May-99	9	20.5	2.7	L 0.0200	0.03	0.66	5.74	2.28	0.34	0.031	1.92	3.29	0.15	0.6	0.07	0.03
08-Oct-99	7	21.7	2.2	L 0.0200	0.05	0.82	5.94	2.47	0.35	0.0641	2.25	3.84	0.16	0.65	0.1361	0.106
15-May-00	9.5	29.4	3.4	L 0.0200	0.04	-0.82	4.85	2.77	0.4	0.0594	2.09	4.47	0.18	0.74	0.0763	0.064
19-Sep-00	L 5.0000	25.8	2.3	L 0.0200	0.04	0.34	5.55	2.84	0.4	0.0403	2.23	4.53	0.17	0.74	0.099	0.07

Last Modified By: clairt
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Hooper Pond

No Map

Drainage Basin	Station Number	Latitude	Longitude
Hooper Pond	NS01EN0006	45 01 00	62 03 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
46	20.72	1.76	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
3.07	0.85	0.40	0.0	0.0

GEOLOGY	PRECAMBRIAN QUARTZITE
SOILS	ROCK LAND & HALIFAX SANDY LOAMS, SMALL AREAS OF DANESVILLE SANDY LOAMS
COVER	CHIEFLY RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, MAPLE, BIRCH. UNDERGROWTH OF LABRADOR TEA, LAMBKILL, BLUEBERRY
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Hooper Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	120	28.7	9.4	L 0.0100	0.16	-0.6	4.8	2.6	0.35	0.2	2.2	3.6	0.19	0.58	0.05	0.41
30-Oct-90	100	35	9.1	L 0.0500	0.16	0.5	5	3.2	0.55	0.25	2	4.8	0.26	1.1	0.06	0.63
29-May-91	70	29	5.4	0.01	0.13	0.2	5.2	3.1	0.44	0.19	2.6	5.1	0.22	1	0.09	0.28
04-Jun-92	55	28	5.2	L 0.0100	0.1	0.8	5.5	3.2	0.47	0.19	2.4	5.5	0.19	1.2	0.07	0.21
20-Oct-92	85	30	8.9	L 0.0200	0.19	0.5	5.2	3.6	0.52	0.21	2.6	5.3	0.21	1.3	0.04	0.6
06-Jul-93	60	29.3	8.2	L 0.0100	0.13	0.5	5.2	3.2	0.48	0.21	2.4	5	0.16	1.1	0.05	0.21
20-Oct-93	85	30	12.5	L 0.0200	0.18	0.7	5.1	3.9	0.58	0.25	2.5	5.8	0.29	1.31	0.04	0.46
18-Oct-95	135	35	13	L 0.0200	0.1	1	5.3	4	0.605	0.28	2.22	5.7	0.35	1.35	0.04	0.76
06-Jun-96	45	31.9	8.7	L 0.0200	0.07	0.2	5.1	3.7	0.46	0.22	2.23	5.82	0.2	1.03	0.07	0.29
28-Oct-96	160	32.4	15.4	L 0.0200	0.11	0.6	5	3.2	0.44	0.35	1.72	4.6	0.14	1.05	0.11	0.65

26-May-97	70	31	7.5	L 0.0200	0.09	0.26	5.2	3.22	0.4	0.19	1.94	5.56	0.26	0.86	0.08	0.28
27-Oct-97	45	34.1	6	L 0.0200	0.07	0.91	5.9	3.72	0.47	0.14	2.5	6.31	0.22	1.3	0.03	0.39
04-May-98	115	35.1	12	L 0.0200	0.08	-0.04	4.97	3.79	0.43	0.25	2.14	5.69	0.2	0.98	0.06	0.34
22-Oct-98	125	36.9	12.6	L 0.0200	0.1	0.84	5.21	4.52	0.59	0.29	2.38	7.04	0.25	1.41	0.07	0.59
27-May-99	54	35.3	6.9	L 0.0200	0.06	0.39	5.2	3.82	0.54	0.19	2.2	6.28	0.3	1.1	0.08	0.19
08-Oct-99	68	38.6	10.4	L 0.0200	0.08	1.04	5.32	4.23	0.61	0.192	2.42	7.4	0.28	1.36	0.0654	0.762
15-May-00	69	40.3	9.1	L 0.0200	0.09	-0.45	5.05	4.22	0.58	0.225	2.47	7.63	0.3	1.23	0.0702	0.315
19-Sep-00	79	38.3	8.7	L 0.0200	0.07	0.47	5.36	4.51	0.57	0.233	2.36	7.43	0.3	1.25	0.0656	0.44

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Nowlin Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Salmon Brook	NS01EN0009	44 58 59	62 22 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
60	59.53	2.46	1081010	2.28

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
4.43	1.37	0.92	5.11	1.82

GEOLOGY	**PRECAMBRIAN SLATE & QUARTZITE**
SOILS	**HALIFAX & WOLFVILLE SANDY LOAMS**
COVER	**CHIEFLY RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, MAPLE, BIRCH, ALDER**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**NOT SAMPLED**
ZOOPLANKTON	**NOT SAMPLED**

Nowlin Pond Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	L 5.0000	22.3	2.2	0.01	0.08	1	6	2.3	0.35	0.04	2	3.1	0.17	0.78	0.02	0.029
30-Oct-90	L 5.0000	25	2	L 0.0500	0.08	1.3	6.2	2.5	0.41	0.028	2.4	3.4	0.2	0.78	0.03	0.032
29-May-91	10	22	1.8	0.02	0.1	1	6	2.5	0.38	0.031	2.4	3.8	0.22	0.79	0.02	0.13
04-Jun-92	25	18	2.6	L 0.0100	0.09	0.5	5.5	2	0.28	0.1	2.1	2.9	0.19	0.75	0.06	0.2
20-Oct-92	5	25	2.1	L 0.0200	0.11	1.1	6.2	2.8	0.41	0.013	2.7	4.2	0.28	0.8	0.01	0.019
06-Jul-93	5	23	2	L 0.0100	0.09	1	6.1	2.7	0.36	0.02	2.4	4.1	0.18	0.8	0.01	0.013
20-Oct-93	5	22	2.9	L 0.0200	0.14	1.1	6.1	2.9	0.43	0.02	2.5	4.2	0.21	0.83	0.01	0.015
04-Nov-94	5	25	3.1	L 0.0200	0.05	1.7	5.9	2.9	0.45	0.035	2.3	4.4	0.2	0.9	0.02	0.024
26-May-95	10	25	2.8	L 0.0200	0.04	0.8	6	2.9	0.41	0.034	2.2	4.4	0.21	0.82	0.03	0.023
18-Oct-95	5	26	3.2	L 0.0200	0.03	1.3	6.2	3	0.427	0.018	2.27	4.2	0.23	0.811	0.01	0.017

06-Jun-96	45	25.5	1.9	L 0.0200	0.04	0.7	6	3	0.42	0.041	2.22	4.59	0.21	0.81	0.01	0.02
28-Oct-96	10	25.7	3.5	L 0.0200	0.07	1.1	6	2.7	0.4	0.043	2.07	4.17	0.15	0.86	0.02	0.02
26-May-97	10	24.2	2.8	L 0.0200	0.08	0.93	6	2.71	0.38	0.045	1.85	4.22	0.2	0.72	0.02	0.03
27-Oct-97	L 5.0000	25.6	2.2	L 0.0200	0.05	0.7	6.3	2.78	0.4	0.012	2.19	4.37	0.23	0.88	0.01	0.02
04-May-98	25	23.5	4.5	L 0.0200	0.06	1.02	5.7	2.46	0.36	0.1	2.02	3.61	0.15	0.74	0.03	0.07
22-Oct-98	15	23.7	3	L 0.0200	0.09	1	6.1	2.59	0.38	0.028	2.28	3.76	0.18	0.79	0.02	0.021
08-Oct-99	5	25.3	2	L 0.0200	0.04	1.12	6.14	2.92	0.43	0.012	2.4	4.6	0.19	0.85	0.0242	L 0.0500
15-May-00	7	28.1	2.4	L 0.0200	0.06	0.16	6.1	3.2	0.47	0.0361	2.27	5.08	0.17	0.87	0.0182	L 0.0500
19-Sep-00	L 5.0000	27.8	1.9	L 0.0200	0.03	0.76	6.22	3.27	0.47	0.0156	2.41	5.23	0.2	0.93	0.0196	L 0.0500
04-May-98	100	19.6	8.7	L 0.0200	0.06	-0.26	5	1.68	0.24	0.17	1.69	2.06	0.14	0.56	0.03	0.2

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Last Modified On: Tuesday, January 09, 2001 14:54:32

Paul Morris Lake

No Map

Drainage Basin	Station Number	Latitude	Longitude
Quoddy	NS01EN0008	44 57 00	62 22 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
30	18.13	1.11	0.0	0.0

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
1.61	0.54	0.39	0.0	0.0

GEOLOGY	PRECAMBRIAN QUARTZITE
SOILS	HALIFAX & WOLFVILLE SANDY LOAMS, SMALL AREAS OF PEAT
COVER	RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, MAPLE, BIRCH, ALDER
FISH	NOT SAMPLED
PHYTOPLANKTON	NOT SAMPLED
ZOOPLANKTON	NOT SAMPLED

Paul Mooris Lake Chemistry

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	20	26.3	4.2	L 0.0100	0.1	-0.1	5.4	2.7	0.42	0.16	2.3	4.2	0.45	0.61	0.05	0.14
30-Oct-90	30	30	4.9	L 0.0500	0.1	0.5	5.5	3	0.48	0.15	2.4	4.3	0.48	0.69	0.06	0.3
29-May-91	30	26	3.6	L 0.0100	0.1	0.5	5.3	3	0.45	0.13	2.6	4.9	0.44	0.68	0.04	0.07
02-Oct-91	130	41	16.8	L 0.0100	0.33	-0.6	4.6	4.1	0.61	0.41	2.5	6	0.17	1.2	0.11	0.52
04-Jun-92	5	23	1.2	0.01	0.07	1.1	6.2	2.6	0.74	0.032	2.3	4.6	0.18	0.82	0.02	0.012
20-Oct-92	15	30	3.5	L 0.0200	0.12	0.7	5.9	3.3	0.48	0.1	2.6	5.2	0.36	0.76	0.04	0.16
06-Jul-93	20	26.6	5	L 0.0100	0.11	0.5	5.5	3.2	0.46	0.14	2.4	4.9	0.28	0.8	0.03	0.05
20-Oct-93	25	26	6.6	L 0.0200	0.17	0.8	5.5	3.4	0.52	0.16	2.4	5.3	0.3	0.81	0.05	0.24
04-Nov-94	35	28	6.8	L 0.0200	0.08	0.5	5.3	3.4	0.52	0.15	2.3	5.3	0.26	0.86	0.04	0.22
26-May-95	30	29	5.3	L 0.0200	0.06	0.2	5.4	3.4	0.49	0.16	2.2	5.6	0.3	0.78	0.03	0.08

18-Oct-95	35	29	5.9	L 0.0200	0.06	0.8	5.6	3.4	0.483	0.15	2.17	5.01	0.28	1.04	0.05	0.25
06-Jun-96	45	30.8	5.6	L 0.0200	0.05	0.1	5.3	3.5	0.5	0.16	2.24	5.5	0.26	0.77	0.02	0.06
28-Oct-96	50	28.3	8.3	L 0.0200	0.11	0.5	5.3	3.2	0.42	0.24	1.95	4.49	0.21	0.71	0.07	0.29
26-May-97	35	24.6	5	L 0.0200	0.09	0.99	5.8	2.65	0.36	0.093	2.04	3.85	0.31	0.86	0.02	0.05
27-Oct-97	15	28.7	4.1	L 0.0200	0.04	0.4	6	3.29	0.43	0.084	2.12	5.1	0.29	0.85	0.03	0.14
04-May-98	30	26.2	5.4	L 0.0200	0.08	0.49	5.6	2.86	0.41	0.14	2.07	4.43	0.18	0.7	0.02	0.08
22-Oct-98	40	26.2	6.4	L 0.0200	0.08	0.49	5.38	2.83	0.43	0.2	2.23	4.09	0.14	0.7	0.17	0.3
27-May-99	22	28.7	4.8	L 0.0200	0.05	0.42	5.46	3.28	0.5	0.13	2.2	5.22	0.19	0.76	0.03	0.04
08-Oct-99	16	36.6	4.3	L 0.0200	0.06	4.35	7.04	3.48	0.53	0.0938	2.36	6.01	0.2	0.84	0.0599	0.242
15-May-00	25	35	5.6	L 0.0200	0.05	-0.19	5.24	4	0.56	0.158	2.36	6.64	0.22	0.88	0.0356	0.082
19-Sep-00	14	33.6	3.8	L 0.0200	0.04	0.3	5.72	4.17	0.55	0.0939	2.37	6.84	0.21	0.86	0.057	0.1

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 14:56:17

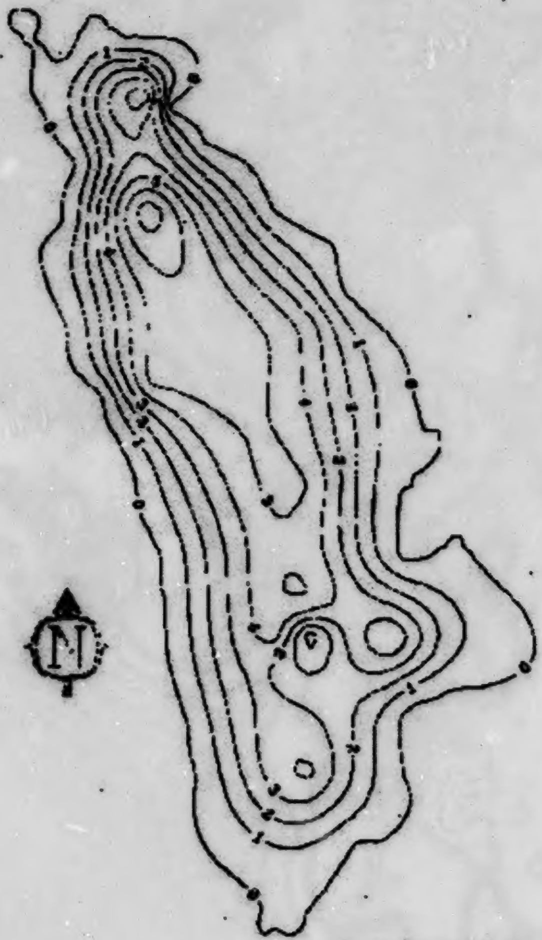
Halfway Brook Lake

Drainage Basin	Station Number	Latitude	Longitude
Halfway Brook	NS01EM0006	44 57 00	62 27 00

Elevation	Lake Area ha	Basin Area km2	Lake Volume	Flushing Rate
60	106.61	4.77	2676690	1.78

Shorelength	Max. Eff. Length	Max. Eff. Width	Max. Depth	Mean Depth
7.5	2.48	0.85	7.56	2.51

GEOLOGY	**QUARTZITE & PRECAMBRIAN SLATE**
SOILS	**HALIFAX & DANESVILLE SANDY LOAMS, SMALL AREAS OF WOLFVILLE SANDY LOAM, PEAT**
COVER	**CHIEFLY RED & WHITE SPRUCE, BALSAM FIR, HEMLOCK, PINE, MAPLE, BIRCH. UNDERGROWTH OF LABRADOR TEA, LAMBKILL, BLUEBERRY**
FISH	**NOT SAMPLED**
PHYTOPLANKTON	**Not Sampled**
ZOOPLANKTON	**Not Sampled**



HALFWAY BROOK

SCALE 1 cm. = 125 meters

1 meter contours

Halfway Brook Lake

	COLOUR_AP	SP_COND	DOC	N_DIS_NO3	N_TOT	ALK_GRAN	PH	NA_DIS	MG_DIS	AL_EXT	SO4_DIS	CL_DIS	K_DIS	CA_DIS	MN_EXT	FE_EXT
	REL UNITS	USIE/CM	MG/L	MG/L	MG/L	MG/L	PH UNITS	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
06-Jun-90	15	22.4	2.8	L 0.0100	0.14	0.1	5.4	2.3	0.33	0.09	2.2	3.2	0.22	0.7	0.1	0.16
30-Oct-90	30	27	5.1	L 0.0500	0.11	0.8	5.4	2.7	0.42	0.088	2.2	3.4	0.2	0.88	0.11	0.19
29-May-91	35	23	3	L 0.0100	0.09	0.4	5.4	2.4	0.35	0.093	2.5	3.7	0.2	0.77	0.11	0.16
01-Oct-91	10	26	4.1	L 0.0100	0.2	0.9	6.6	2.9	0.41	0.087	2.5	4	0.34	0.84	0.26	0.25
04-Jun-92	20	26	3.3	0.01	0.1	0.8	5.9	3.2	0.5	0.12	2.5	5.4	0.34	0.89	0.03	0.1
20-Oct-92	10	25	3.3	L 0.0200	0.12	0.5	5.6	2.8	0.38	0.045	3	4.4	0.2	0.88	0.02	0.09
06-Jul-93	25	23.6	3.7	L 0.0100	0.13	0.4	5.4	2.6	0.44	0.092	2.3	3.7	0.16	0.9	0.13	0.15
04-Nov-94	35	25	6.6	L 0.0200	0.08	0.9	5.3	3	0.42	0.078	2.2	4.5	0.2	0.96	0.07	0.22
26-May-95	40	26	4.9	L 0.0200	0.06	0.5	5.3	3	0.35	0.1	2.2	4.6	0.23	0.78	0.1	0.16
18-Oct-95	30	26	5.7	L 0.0200	0.05	0.8	5.7	3	0.38	0.072	2.1	4.1	0.21	0.811	0.04	0.22

06-Jun-96	35	29.6	6.4	L 0.0200	0.04	0.1	5.2	2.9	0.36	0.12	2.12	4.24	0.19	0.77	0.09	0.19
28-Oct-96	80	25.4	9.8	L 0.0200	0.09	1	5.2	2.6	0.38	0.16	1.65	3.51	0.18	0.9	0.14	0.36
26-May-97	45	23.8	4.4	L 0.0200	0.07	0.15	5.4	2.54	0.34	0.077	1.86	3.91	0.25	0.57	0.1	0.15
27-Oct-97	10	25.8	3.1	L 0.0200	0.06	0.34	5.8	2.98	0.35	0.03	2.47	4.34	0.32	0.88	0.04	0.17
04-May-98	40	23	5.2	L 0.0200	0.07	0.14	5.4	2.26	0.32	0.095	2.16	3.41	0.15	0.74	0.11	0.13
22-Oct-98	50	25.5	7.5	L 0.0200	0.1	0.55	5.31	2.5	0.41	0.13	2.21	3.5	0.15	0.94	0.12	0.28
27-May-99	26	27.3	4.3	L 0.0200	0.04	0.35	5.31	2.93	0.4	0.091	2.25	4.64	0.21	0.84	0.1	0.15
08-Oct-99	18	29.4	4.6	L 0.0200	0.07	0.74	5.51	3.33	0.45	0.0676	2.51	5.4	0.22	1.03	0.125	0.253
15-May-00	39	31.6	5.1	L 0.0200	0.08	-0.39	5.35	3.51	0.45	0.109	2.44	5.77	0.2	0.91	0.142	0.199
19-Sep-00	20	31.6	4.4	L 0.0200	0.05	0.21	5.52	3.64	0.48	0.0641	2.51	5.85	0.19	1	0.0865	0.19

Last Modified By: clairt
Last Modified On: Tuesday, January 09, 2001 11:53:56

The Canadian Air and Precipitation Monitoring Network

The Canadian Air and Precipitation Monitoring Network is a non-urban air quality monitoring network with siting criteria designed to ensure that the measurement locations are regionally representative (not affected by local sources of air pollution). Scientists involved with the measurement of atmospheric pollution in urban centres would consider most CAPMoN sites to be remote and pristine. There are currently 19 measurement sites in Canada and 1 in the U.S.

Network Objectives:

- **Determine the spatial patterns and establish the temporal trends of atmospheric pollutants related to acid rain and smog**
- **Provide data for long-range transport model evaluations and effects research (aquatic and terrestrial)**
- **Ensure the compatibility of Federal, Provincial and U.S. measurements**
- **Study atmospheric processes**

Network Measurements:

- **Precipitation Chemistry, 24 hour integrated samples.**
Cl - , NO3 - , SO4 = , NH4 + , Na + , K + , Ca ++ , Mg ++ , pH
- **Particles and related trace gases, 24 hour integrated filter samples.**
particulate Cl - , NO3 - , SO4 = , NH4 + , Na + , K + , Ca ++ , Mg ++ , gaseous HNO3 and SO2
- **Tropospheric (ground level) ozone measurements, hourly averages.**

Precipitation Chemistry

The wet only precipitation collector shown on the right samples precipitation only when it rains or snows. During precipitation events sensors located on the collector automatically signal the roof to uncover the bucket. The bucket holds a specially designed plastic bag (Mylar outer laminate and Polyethylene inner laminate). The bags are replaced every day between 0800 and 0900 LST and

all exposed bags (containing 24 hour integrated samples) are immediately sealed and refrigerated at 4o C until chemical analyses has been completed.

The Nipher Shielded Snow Gauge (above) and the type B Rain Gauge (below) measure the amount of precipitation that fell in the last 24 hours in mm of water. The amount of wet deposition of a pollutant is calculated by multiplying the measured amount of precipitation by the concentration of the pollutant in the precipitation.

Atlantic Canada

Select Area :

Bay d'Espoir
Goose Bay
Keji
Jackson

Atlantic Canada CAPMoN Sites

Precipitation Chemistry Data 1979 - 1998

To the right is a map of Atlantic Canada. Please choose the station you wish to got by clicking on the respective square.

Bay d'Espoir, Newfoundland

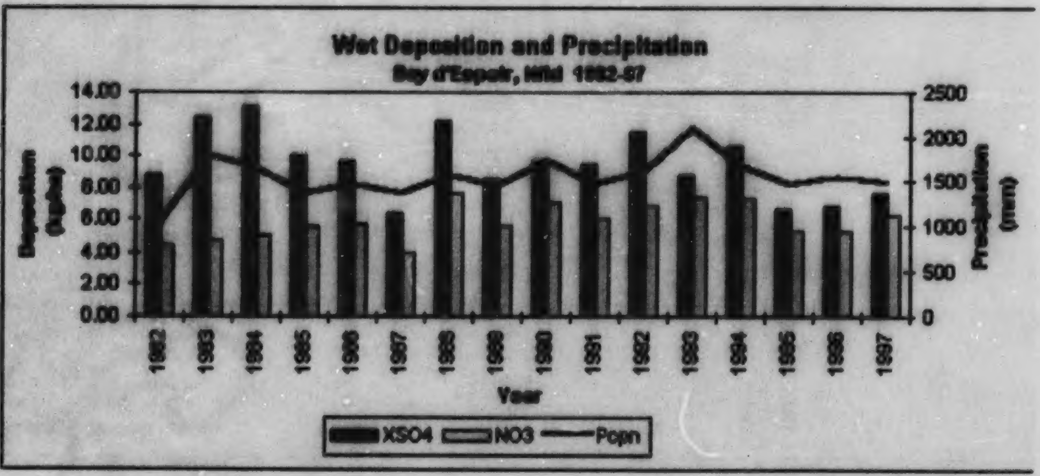
CAPM84421A Bay d'Espoir 07/06/83 09/27/89

The Bay dEspoir site was located at the Bay dEspoir Hydro Electric Generating Station approximately 230 km west-northwest of St. Johns in the Hermitage area of Newfoundland. The site was 2 km northwest of the salt water body Bay dEspoir and approximately 45 km northwest of the Gulf of St. Lawrence. The site itself was on a hill in an open area approximately 200 metres in diameter and surrounded on the north, west and east sides by sparse coniferous forest and brush. The site was exposed to the south and overlooked Bay dEspoir. The CAPMoN collector was located at the east side of the clearing 20 metres from the tree line. The immediate area was flat with a moderate slope to the south and the ground cover consists of gravel, crushed stone and rock. The general topography was hilly with a large fresh water reservoir, Long Pond, 3 km east of the site. Access to the site was by a private gravel road which was also used occasionally to check nearby water control damns. Other than the hydro-electric generating station the site was well removed from industrial and urban activity. The site was replaced by Bay dEspoir B in September, 1989.

CAPM84421A Bay d'Espoir B 09/27/89 / /

The Bay dEspoir B site was established in September, 1989 because access to the old site was unsafe during winter months. The new site is 7.5 km northwest of the head of the salt water Bay dEspoir and 13 km northeast of St. Albans (population 2,000). The general topography is flat and there is a water reservoir in the area. The site itself is in a flat, cleared area covered with grass and mud on the top of a hill. A 10-metre-high dam is 150 metres north. A gravel road, used by industrial and recreational traffic, to the dam is 250 metres away and the road from Route 361 to the Bay dEspoir Generating Station is 1.25 km away.

Graph



Use the link below to downoad the data.
Left-Click to view data.
Right-Click to save data. (choose "Save Target As" option)

Monthly Data

- Data as Excel File
- Data as Dbase File

Quarterly Data

- Data as Excel File
- Data as Dbase File

Yearly Data

- Data as Excel File
- Data as Dbase File

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SUMPR     SITEID    SITENAME            LAT       LON       STARTPER            ENDPER              TOTPRCP             pH
          HPLCN     HPLDP     SO4CN     SO4DP     XSO4CN              XSO4DP              NO3CN     NO3DP     CLDN      CLDP
          NH4CN     NH4DP     NACN      NADP      CACN      CADP      MGCN      MGDP      KCN       KDP

MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19830801            19830831            20
          4.6       0.0236    0.0473    1.11      2.22      1.06      2.12      0.43      0.86      0.53      1.15      .
          .         .         .         0.1       0.2       0.04      0.09      0.02      0.04
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19830901            19830930            13.4
          .         .         .         .         .         .         .         0.33      0.44      .         .         0.069
          0.092     .         .         0.06      0.08      0.02      0.03      0.05      0.07
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19831001            19831031            4.8
          4.6       0.0244    0.0116    1.5       0.71      1.29      0.61      0.55      0.26      2.16      1.03      .
          .         1.06      0.5       0.21      0.1       0.15      0.07      0.06      0.03
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19831101            19831130            14.1
          4.8       0.0147    0.0207    0.64      0.9       0.41      0.58      0.14      0.2       1.79      2.52      .
          .         1.01      1.42      0.15      0.21      0.11      0.15      0.18      0.25
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19831201            19831231            15.1
          4.9       0.0125    0.0189    0.97      1.47      0.65      0.98      0.29      0.44      2.15      3.25      .
          .         .         .         0.16      0.24      0.15      0.23      0.06      0.09
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840101            19840131            23.3
          .         .         .         0.72      1.68      0.57      1.33      0.15      0.35      1.05      2.45      .
          .         .         .         0.26      0.61      0.09      0.21      0.05      0.12
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840201            19840229            19.6
          5.1       0.0081    0.0158    0.68      1.33      0.45      0.88      0.23      0.45      .         .         .
          .         .         .         0.22      0.43      0.11      0.22      0.08      0.16
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840301            19840331            12.9
          5.6       0.0026    0.0033    1.07      1.38      0.84      1.08      0.14      0.18      1.09      1.4       .
          .         .         .         0.34      0.44      0.08      0.1       0.1       0.13
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840401            19840430            9.3
          5.6       0.0026    0.0024    0.56      0.52      0.47      0.44      0.15      0.14      0.67      0.62      .
          .         0.37      0.34      0.22      0.2       0.06      0.06      0.04      0.04
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840501            19840531            15.3
          5.2       0.0058    0.0089    0.65      0.99      0.53      0.81      0.27      0.41      0.7       1.16      .
          .         .         .         0.24      0.37      0.07      0.11      0.06      0.09
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840601            19840630            14.8
          4.5       0.0294    0.0434    1.5       2.21      1.41      2.08      0.58      0.86      0.68      1         .
          .         .         .         .         .         0.05      0.07      0.04      0.06
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840701            19840731            6.2
          4.6       0.0227    0.0141    1.81      1.12      1.67      1.03      0.66      0.41      0.65      0.4       0.118
          0.073     .         .         0.32      0.2       0.08      0.05      0.06      0.04
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840801            19840831            20
          4.9       0.0142    0.0284    1.28      2.56      1.18      2.36      0.4       0.8       .         .         .
          .         .         .         .         .         0.11      0.22      0.11      0.22
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19840901            19840930            17.6
          5.1       0.0085    0.0149    0.7       1.23      0.61      1.07      0.27      0.47      .         .         0.057
          0.1       .         .         0.13      0.23      0.03      0.05      0.05      0.09
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19841001            19841031            6.2
          4.7       0.0194    0.0121    1.15      0.72      1.06      0.66      0.47      0.29      0.83      0.52      .
          .         .         .         0.06      0.04      0.04      0.02      0.03      0.02
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19841101            19841130            6.4
          5         0.0103    0.0066    1.12      0.71      0.88      0.56      0.33      0.21      1.58      1.01      0.015
          0.01      .         .         0.15      0.1       0.09      0.06      0.13      0.08
MONTH               CAPM84421A          Bay d'Espoir        47.992    55.817    19841201            19841231            13.8
          5.1       0.0073    0.0101    0.8       1.1       0.56      0.77      0.23      0.32      1.7       2.35      0.03
          0.041     1.04      1.44      0.13      0.18      0.1       0.14      0.13      0.18
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MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850101            19850131            8.1
         5  0.0094  0.0076  1.52    1.23    0.71    0.58    0.35      0.28      5.55      4.5       0.113
     0.092  3.26    2.64    0.16    0.13    0.34    0.28    0.13      0.11
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850201            19850228            8.8
       4.7  0.0187  0.0164  0.73    0.64    0.63    0.55    0.28      0.25      0.69      0.61      0.059
     0.052  0.39    0.34    0.05    0.04    0.04    0.04    0.03      0.03
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850301            19850331            12.1
       4.6  0.0258  0.0313  1.08    1.31    1.02    1.24    0.37      0.45      0.47      0.57      0.139
     0.169  0.25    0.3     0.05    0.06    0.03    0.04    0.02      0.02
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850401            19850430            5.6
       4.4  0.0377  0.021   1.5     0.83    1.37    0.76    0.81      0.45      0.95      0.53      0.157
     0.087  0.49    0.27    0.09    0.05    0.07    0.04    0.03      0.02
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850501            19850531            12.4
       4.7  0.02    0.0247  0.89    1.1     0.82    1.01    0.38      0.47      0.54      0.67      0.074
     0.091  0.29    0.36    0.05    0.06    0.04    0.05    0.02      0.02
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850601            19850630            25.4
       4.8  0.0147  0.0373  0.79    2.01    0.74    1.88    0.41      1.04      0.39      0.99      0.074
     0.188  0.23    0.58    0.1     0.26    0.04    0.1     0.03      0.08
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850701            19850731            16.8
       4.3  0.0498  0.0838  1.17    1.97    1.16    1.95    0.66      1.11      0.13      0.22      0.149
     0.251  0.03    0.05    0.01    0.02    0.01    0.02    0.01      0.02
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850801            19850831            11.6
         5  0.0096  0.0111  0.21    0.24    0.2     0.23    0.21      0.24      0.09      0.1       0.024
     0.028  0.04    0.05    0.01    0.01    0.01    0.01    0.02      0.02
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19850901            19850930            6
       4.7  0.0201  0.012   1.02    0.61    0.97    0.58    0.47      0.28      0.32      0.19      0.128
     0.076  0.15    0.09    0.04    0.02    0.02    0.01    0.02      0.01
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19851001            19851031            4.7
       4.6  0.028   0.013   1.13    0.53    0.99    0.46    0.89      0.41      1.02      0.47      0.112
     0.052  0.62    0.29    0.05    0.02    0.07    0.03    0.03      0.01
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19851101            19851130            9.2
       4.9  0.0118  0.0108  0.38    0.35    0.32    0.29    0.18      0.17      0.47      0.43      0.034
     0.031  0.25    0.23    0.02    0.02    0.03    0.03    0.02      0.02
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19851201            19851231            16.5
         5  0.0093  0.0154  0.44    0.73    0.29    0.48    0.23      0.38      0.98      1.62      0.019
     0.031  0.59    0.98    0.04    0.07    0.05    0.08    0.09      0.15
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19860101            19860131            23.7
         .  .       .       .       .       .       .       .         .         .         .         .
         .  .       .       .       .       .       .       .         .
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19860201            19860228            12.1
         .  .       .       .       .       .       .       .         .         .         .         .
         .  .       .       .       .       .       .       .         .
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19860301            19860331            11.2
         .  .       .       .       .       .       .       .         .         .         .         .
         .  .       .       .       .       .       .       .         .
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19860401            19860430            18
         .  .       .       .       .       .       .       .         .         .         .         .
         .  .       .       .       .       .       .       .         .
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19860501            19860531            3.8
       4.3  0.0526  0.0199  2.56    0.97    2.54    0.96    1.03      0.39      0.28      0.11      0.271
     0.103  0.12    0.05    0.04    0.02    0.01    0       0.01      0
MONTH       CAPM84421A      Bay d'Espoir    47.992  55.817  19860601            19860630            13.8
       4.4  0.0367  0.0506  1.14    1.57    1.12    1.55    0.61      0.84      0.19      0.26      0.134
     0.185  0.09    0.12    0.03    0.04    0.01    0.01    0.01      0.01
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MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19860701        19860731        8.7
      4.9  0.0136 0.0118 0.28    0.24   0.26    0.23    0.18    0.16    0.21    0.18    0.03
    0.026  0.1    0.09   0.01    0.01   0.02    0.02    0.01    0.01
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19860801        19860831        7.8
      4.4  0.0422 0.0328 1.26    0.98   1.18    0.92    0.78    0.61    0.64    0.5     0.097
    0.075  0.35   0.27   0.04    0.03   0.04    0.03    0.03    0.02
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19860901        19860930        14.2
      4.9  0.0131 0.0185 0.51    0.72   0.44    0.62    0.26    0.37    0.48    0.68    0.038
    0.054  0.28   0.4    0.02    0.03   0.04    0.06    0.01    0.01
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19861001        19861031        11.4
      4.8  0.0164 0.0186 0.65    0.74   0.6     0.68    0.36    0.41    0.35    0.4     0.087
    0.099  0.19   0.22   0.02    0.02   0.02    0.02    0.02    0.02
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19861101        19861130        14.7
      4.9  0.012  0.0177 0.41    0.6    0.34    0.5     0.32    0.47    0.52    0.77    0.028
    0.041  0.32   0.47   0.02    0.03   0.03    0.04    0.04    0.06
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19861201        19861231        6.6
        .  .      .      .       .      .       .       .       .       .       .       .
        .  .      .      .       .      .       .       .       .
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870101        19870131        15.1
      4.8  0.0145 0.0219 0.54    0.81   0.44    0.66    0.4     0.6     0.72    1.09    0.024
    0.036  0.45   0.68   0.03    0.05   0.05    0.08    0.03    0.05
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870201        19870228        9.6
      5.1  0.0082 0.0092 0.38    0.43   0.23    0.26    0.17    0.19    1.14    1.09    0.019
    0.018  0.6    0.58   0.04    0.05   0.06    0.07    0.05    0.05
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870301        19870331        6.5
      5.1  0.0082 0.0053 0.32    0.21   0.26    0.17    0.13    0.08    0.44    0.29    0.026
    0.017  0.35   0.23   0.02    0.01   0.03    0.02    0.02    0.01
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870401        19870430        14.1
      5    0.0101 0.0143 0.49    0.69   0.43    0.61    0.29    0.41    0.38    0.54    0.047
    0.066  0.22   0.31   0.04    0.06   0.03    0.04    0.04    0.06
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870501        19870531        9.2
      5    0.0104 0.0095 0.55    0.5    0.5     0.46    0.34    0.31    0.34    0.31    0.077
    0.071  0.2    0.18   0.02    0.02   0.02    0.02    0.01    0.01
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870601        19870630        8.5
      4.8  0.0165 0.014  0.67    0.57   0.63    0.53    0.41    0.35    0.27    0.23    0.072
    0.061  0.15   0.13   0.03    0.03   0.02    0.02    0.02    0.02
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870701        19870731        3.8
        .  .      .      .       .      .       .       .       .       .       .       .
        .  .      .      .       .      .       .       .       .
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870801        19870831        5.7
      4.5  0.0315 0.0181 1.41    0.81   1.29    0.74    0.89    0.51    0.84    0.48    0.114
    0.066  0.47   0.27   0.06    0.03   0.06    0.03    0.02    0.01
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19870901        19870930        8.5
      4.5  0.0312 0.0266 1.78    1.52   1.57    1.34    0.46    0.39    1.43    1.22    0.15
    0.128  0.86   0.73   0.07    0.06   0.1     0.09    0.04    0.03
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19871001        19871031        20.4
      5.2  0.0068 0.0139 0.37    0.76   0.22    0.45    0.14    0.29    1.01    2.06    0.013
    0.027  0.59   1.21   0.03    0.06   0.07    0.14    0.02    0.04
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19871101        19871130        18.2
      5.1  0.0085 0.0155 0.52    0.95   0.3     0.55    0.23    0.42    1.52    2.77    0.027
    0.049  0.87   1.58   0.04    0.07   0.1     0.18    0.03    0.05
MONTH      CAPM84421A    Bay d'Espoir   47.992  55.817  19871201        19871231        16.8
      5.4  0.0045 0.0076 0.59    0.99   0.11    0.19    0.11    0.18    3.61    6.06    0.006
    0.01   1.97   3.31   0.08    0.13   0.23    0.39    0.08    0.13
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MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880101         19880131        9.1
        4.8     0.0173  0.0157  0.87    0.79    0.59    0.54    0.45    0.41    1.84    1.67    0.036
        0.033   1.12    1.02    0.06    0.05    0.13    0.12    0.04    0.04
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880201         19880229        29.1
        5.1     0.0081  0.0236  0.59    1.72    0.37    1.08    0.24    0.7     1.5     4.36    0.069
        0.201   0.99    2.88    0.08    0.23    0.07    0.2     0.13    0.38
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880301         19880331        16.8
        4.9     0.012   0.0201  .       .       .       .       .       .       .       .       0.027
        0.045   0.17    0.29    0.02    0.03    0.02    0.03    0.01    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880401         19880430        8
        4.7     0.0191  0.0153  0.94    0.75    0.81    0.65    0.6     0.48    1.04    0.83    0.119
        0.095   0.56    0.45    0.07    0.06    0.07    0.06    0.03    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880501         19880531        5.9
        4.5     0.0312  0.0183  1.56    0.92    1.52    0.89    0.95    0.56    0.32    0.19    0.219
        0.129   0.27    0.16    0.09    0.05    0.03    0.02    0.03    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880601         19880630        21
        4.6     0.0246  0.0515  1.22    2.56    1.19    2.49    0.55    1.15    0.26    0.54    0.168
        0.352   0.14    0.29    0.03    0.06    0.02    0.04    0.02    0.04
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880701         19880731        10.4
        4.5     0.032   0.0332  2.02    2.1     1.98    2.06    0.86    0.89    0.29    0.3     0.26
        0.27    0.18    0.19    0.07    0.07    0.03    0.03    0.02    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880801         19880831        7.9
        4.8     0.0156  0.0123  0.65    0.51    0.64    0.5     0.33    0.26    0.13    0.1     0.064
        0.05    0.1     0.08    0.03    0.02    0.01    0.01    0.01    0.01
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19880901         19880930        10.2
        4.8     0.0151  0.0155  0.78    0.8     0.67    0.69    0.37    0.38    0.82    0.84    0.08
        0.082   0.47    0.48    0.05    0.05    0.05    0.05    0.02    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19881001         19881031        11.8
        4.8     0.0145  0.0171  0.73    0.86    0.64    0.76    0.28    0.33    0.53    0.63    0.055
        0.065   0.35    0.41    0.02    0.02    0.04    0.05    0.02    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19881101         19881130        17
        4.9     0.0122  0.0207  0.68    1.15    0.47    0.8     0.31    0.53    1.37    2.33    0.035
        0.059   0.81    1.38    0.04    0.07    0.09    0.15    0.03    0.05
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19881201         19881231        9
        4.5     0.0299  0.0269  1.18    1.06    0.8     0.72    1.5     1.35    2.68    2.41    0.078
        0.07    1.58    1.42    0.1     0.09    0.19    0.17    0.07    0.06
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19890101         19890131        18
        5.1     0.0087  0.0156  .       .       .       .       .       .       .       .       0.018
        0.032   0.62    1.11    0.04    0.07    0.07    0.13    0.02    0.04
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19890201         19890228        11.7
        4.9     0.0122  0.0143  0.57    0.67    0.5     0.59    0.43    0.5     0.51    0.6     0.027
        0.032   0.28    0.33    0.16    0.19    0.04    0.05    0.02    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19890301         19890331        12.2
        4.8     0.0168  0.0206  0.77    0.94    0.61    0.75    0.37    0.45    0.91    1.11    0.074
        0.091   0.64    0.78    0.14    0.17    0.05    0.06    0.17    0.21
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19890401         19890430        6.4
        4.9     0.0127  0.0085  0.68    0.46    0.47    0.3     0.29    0.2     1.28    0.86    0.042
        0.028   0.75    0.5     0.05    0.03    0.09    0.06    0.03    0.02
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19890501         19890531        9.3
        4.6     0.0228  0.0212  1.08    1       1.05    0.98    0.53    0.49    0.24    0.22    0.13
        0.121   0.12    0.11    0.03    0.03    0.02    0.02    0.01    0.01
MONTH           CAPM84421A   Bay d'Espoir    47.992  55.817  19890601         19890630        6.4
        4.7     0.0191  0.0122  0.8     0.51    0.79    0.5     0.54    0.34    0.08    0.05    0.074
        0.047   0.03    0.02    0.03    0.02    0.01    0.01    0.01    0.01
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MONTH       CAPM84421A  Bay d'Espoir    47.992  55.817  19890701          19890731          12.1
       4.9  0.0122  0.0148  0.54   0.65  0.51    0.62    0.34    0.41      0.2     0.24      0.1
     0.121  0.12    0.15    0.02   0.02  0.02    0.02    0.02    0.02
MONTH       CAPM84421A  Bay d'Espoir    47.992  55.817  19890801          19890831          10.7
       4.7  0.0223  0.0239  1.02   1.09  0.92    0.98    0.48    0.51      0.73    0.78      0.076
     0.081  0.42    0.45    0.03   0.03  0.05    0.05    0.02    0.02
MONTH       CAPM84421A  Bay d'Espoir    47.992  55.817  19890901          19890930          14
       5.2  0.0058  0.0081  0.32   0.45  0.24    0.34    0.13    0.18      0.54    0.76      0.018
     0.025  0.31    0.43    0.04   0.06  0.04    0.06    0.02    0.03
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19891001          19891031          13.1
       4.8  0.017   0.0222  0.86   1.12  0.69    0.9     0.4     0.52      1.2     1.57      0.072
     0.094  0.69    0.9     0.05   0.07  0.08    0.1     0.05    0.07
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19891101          19891130          19.7
       4.8  0.0164  0.0324  0.77   1.52  0.59    1.16    0.41    0.81      1.21    2.39      0.046
     0.091  0.71    1.4     0.04   0.08  0.08    0.16    0.03    0.06
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19891201          19891231          9.8
         .  .       .       .      .     .       .       .       .         .       .         .
         .  .       .       .      .     .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900101          19900131          11.2
       4.8  0.0161  0.018   0.51   0.57  0.45    0.5     0.43    0.48      0.68    0.76      0.059
     0.066  0.3     0.33    0.02   0.02  0.04    0.04    0.02    0.02
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900201          19900228          15
         .  .       .       .      .     .       .       .       .         .       .         .
         .  .       .       .      .     .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900301          19900331          8.7
       4.6  0.0272  0.0237  1.09   0.95  0.88    0.77    0.79    0.69      1.66    1.44      0.097
     0.084  1.19    1.04    0.07   0.06  0.15    0.13    0.05    0.04
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900401          19900430          24.5
         .  .       .       .      .     .       .       .       .         .       .         .
         .  .       .       .      .     .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900501          19900531          11.9
         5  0.0103  0.0123  0.49   0.58  0.42    0.5     0.25    0.3       0.43    0.51      0.045
     0.054  0.26    0.31    0.03   0.04  0.03    0.04    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900601          19900630          11.9
       4.8  0.0164  0.0195  0.53   0.63  0.5     0.59    0.49    0.58      0.23    0.27      0.027
     0.032  0.13    0.15    0.02   0.02  0.02    0.02    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900701          19900731          6.7
       4.7  0.021   0.014   0.88   0.59  0.87    0.58    0.51    0.34      0.05    0.03      0.102
     0.068  0.02    0.01    0.02   0.01  0.01    0.01    0.02    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900801          19900831          8.2
         .  .       .       .      .     .       .       .       .         .       .         .
         .  .       .       .      .     .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19900901          19900930          14.5
         .  .       .       .      .     .       .       .       .         .       .         0.037
     0.054  .       .       .      .     .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19901001          19901031          22.4
       4.9  0.0119  0.0267  0.69   1.55  0.51    1.14    0.21    0.47      1.09    2.44      0.038
     0.085  0.74    1.66    0.04   0.09  0.09    0.2     0.03    0.07
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19901101          19901130          16.8
       4.9  0.0135  0.0227  0.72   1.21  0.48    0.81    0.33    0.55      1.51    2.54      0.045
     0.076  0.97    1.63    0.05   0.08  0.12    0.2     0.04    0.07
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19901201          19901231          21.5
       4.9  0.0133  0.0285  0.62   1.33  0.47    1.01    0.39    0.84      1.08    2.32      0.023
     0.049  0.64    1.37    0.04   0.09  0.08    0.17    0.03    0.06
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MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910101        19910131   14.1
   .          .      .      .      .      .       .      .      .       .       .       .
   .          .      .      .      .      .       .      .      .
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910201        19910228   13.4
   .          .      .      .      .      .       .      .      .       .       .       .
   .          .      .      .      .      .       .      .      .
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910301        19910331   21.4
      5.2  0.0062  0.0132  0.38  0.81   0.25   0.53   0.13  0.28   0.99  2.12   0.016
      0.034  0.52  1.11    0.03  0.06   0.07   0.15   0.02  0.04
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910401        19910430   6.3
      4.6  0.025   0.0158  1.12  0.71   1.06   0.67   0.69  0.44   0.41  0.26   0.104
      0.066  0.22  0.14    0.06  0.04   0.03   0.02   0.01  0.01
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910501        19910531   11.1
      4.4  0.0372  0.0412  1.7   1.88   1.65   1.83   0.99  1.1    0.39  0.43   0.22
      0.244  0.21  0.23    0.06  0.07   0.03   0.03   0.02  0.02
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910601        19910630   4.1
      4.3  0.0461  0.019   2.37  0.98   2.31   0.95   1.05  0.43   0.49  0.2    0.368
      0.152  0.27  0.11    0.07  0.03   0.04   0.02   0.03  0.01
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910701        19910731   5.6
      4.7  0.0221  0.0125  1.03  0.58   1      0.56   0.54  0.3    0.24  0.14   0.12
      0.068  0.1   0.06    0.05  0.03   0.02   0.01   0.02  0.01
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910801        19910831   9.9
      4.7  0.0209  0.0208  1.01  1      0.98   0.97   0.51  0.51   0.19  0.19   0.096
      0.095  0.09  0.09    0.04  0.04   0.02   0.02   0.01  0.01
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19910901        19910930   14
      4.9  0.0123  0.0172  0.54  0.75   0.48   0.67   0.31  0.43   0.41  0.57   0.019
      0.027  0.21  0.29    0.02  0.03   0.03   0.04   0.01  0.01
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19911001        19911031   13.2
      5    0.01    0.0132  0.45  0.59   0.36   0.47   0.24  0.32   0.69  0.91   0.02
      0.026  0.38  0.5     0.02  0.03   0.05   0.07   0.02  0.03
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19911101        19911130   18.8
      5    0.0105  0.0197  0.34  0.64   0.28   0.53   0.23  0.43   0.49  0.92   0.011
      0.021  0.27  0.51    0.02  0.04   0.03   0.06   0.01  0.02
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19911201        19911231   15
      4.8  0.0151  0.0226  0.66  0.99   0.55   0.82   0.35  0.52   0.76  1.14   0.019
      0.028  0.41  0.61    0.02  0.03   0.05   0.07   0.02  0.03
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19920101        19920131   13.2
      4.8  0.0146  0.0193  0.63  0.83   0.35   0.46   0.44  0.58   1.98  2.62   0.022
      0.029  1.11  1.47    0.05  0.07   0.13   0.17   0.04  0.05
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19920201        19920229   16.1
      4.7  0.018   0.029   0.64  1.03   0.55   0.88   0.53  0.85   0.63  1.01   0.054
      0.087  0.34  0.55    0.02  0.03   0.04   0.06   0.01  0.02
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19920301        19920331   27.2
      5    0.0106  0.0288  0.76  2.07   0.44   1.2    0.21  0.57   2.28  6.2    0.045
      0.122  1.3   3.53    0.08  0.22   0.16   0.44   0.05  0.14
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19920401        19920430   8.8
      4.7  0.0199  0.0175  0.8   0.7    0.76   0.67   0.46  0.4    0.36  0.32   0.072
      0.063  0.19  0.17    0.04  0.04   0.03   0.03   0.01  0.01
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19920501        19920531   8.6
      4.6  0.0228  0.0196  1     0.86   0.92   0.79   0.5   0.43   0.54  0.46   0.094
      0.081  0.31  0.27    0.05  0.04   0.04   0.03   0.02  0.02
MONTH      CAPM84421B  Bay d'Espoir B  47.992  55.817  19920601        19920630   14.1
      4.6  0.0279  0.0393  1.26  1.77   1.24   1.74   0.57  0.8    0.17  0.24   0.155
      0.218  0.09  0.13    0.02  0.03   0.02   0.03   0.02  0.03
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MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19920701        19920731        11.2
       4.9  0.0134  0.015   0.41    0.46    0.4     0.45    0.25    0.28    0.09    0.1     0.03
     0.034  0.02    0.02    0.01    0.01    0.01    0.01    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19920801        19920831        9.6
       4.5  0.0342  0.0328  1.65    1.58    1.62    1.55    0.69    0.66    0.27    0.26    0.137
     0.131  0.14    0.13    0.02    0.02    0.02    0.02    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19920901        19920930        9.9
       4.6  0.0229  0.0226  1.02    1.01    1       0.99    0.32    0.32    0.13    0.13    0.093
     0.092  0.07    0.07    0.01    0.01    0.01    0.01    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19921001        19921031        17.7
       4.8  0.0179  0.0316  1       1.77    0.74    1.31    0.51    0.9     1.85    3.27    0.081
     0.143  1.08    1.91    0.06    0.11    0.13    0.23    0.04    0.07
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19921101        19921130        7.2
       4.8  0.0148  0.0106  0.74    0.53    0.59    0.42    0.37    0.26    1.03    0.74    0.029
     0.021  0.58    0.42    0.03    0.02    0.07    0.05    0.02    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19921201        19921231        16.3
         .  .       .       .       .       .       .       .       .       .       .       .
         .  .       .       .       .       .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930101        19930131        10.9
       4.9  0.013   0.0142  0.4     0.44    0.34    0.37    0.33    0.36    0.39    0.43    0.018
      0.02  0.2     0.22    0.01    0.01    0.03    0.03    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930201        19930228        26.1
         .  .       .       .       .       .       .       .       .       .       .       .
         .  .       .       .       .       .       .       .       .
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930301        19930331        16.6
       5.1  0.0087  0.0145  0.45    0.75    0.22    0.37    0.22    0.37    1.42    2.36    0.021
     0.035  0.92    1.53    0.05    0.08    0.12    0.2     0.03    0.05
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930401        19930430        15.1
       4.8  0.0149  0.0225  0.6     0.9     0.47    0.71    0.28    0.42    0.95    1.43    0.064
     0.096  0.56    0.84    0.05    0.08    0.07    0.11    0.02    0.03
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930501        19930531        13.7
       4.7  0.0224  0.0318  0.87    1.24    0.82    1.16    0.43    0.61    0.36    0.49    0.109
     0.155  0.2     0.27    0.03    0.04    0.03    0.04    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930601        19930630        11.9
       4.5  0.0322  0.0384  0.88    1.05    0.84    1       0.76    0.91    0.26    0.31    0.122
     0.145  0.14    0.17    0.03    0.04    0.02    0.02    0.02    0.02
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930701        19930731        18.2
       4.9  0.0137  0.025   0.29    0.53    0.27    0.49    0.35    0.64    0.17    0.31    0.046
     0.084  0.08    0.15    0.02    0.04    0.02    0.04    0.02    0.04
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930801        19930831        7
       4.6  0.0246  0.0172  0.57    0.4     0.55    0.39    0.59    0.41    0.11    0.08    0.081
     0.057  0.05    0.04    0.02    0.01    0.01    0.01    0.01    0.01
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19930901        19930930        14.4
       4.8  0.0176  0.0253  0.58    0.83    0.54    0.78    0.37    0.53    0.29    0.42    0.063
     0.091  0.17    0.24    0.02    0.03    0.03    0.04    0.02    0.03
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19931001        19931031        20.3
       4.9  0.0122  0.0248  0.56    1.14    0.39    0.79    0.29    0.59    1.25    2.54    0.044
     0.089  0.69    1.4     0.04    0.08    0.09    0.18    0.04    0.08
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19931101        19931130        19.5
       4.7  0.022   0.0428  0.95    1.85    0.67    1.3     0.73    1.42    2.06    4.12    0.059
     0.115  1.17    2.34    0.07    0.14    0.14    0.28    0.09    0.18
MONTH       CAPM84421B  Bay d'Espoir B  47.992  55.817  19931201        19931231        36.1
       5.1  0.0085  0.0307  0.6     2.17    0.22    0.8     0.16    0.58    2.71    9.79    0.012
     0.043  1.51    5.46    0.07    0.25    0.19    0.69    0.06    0.22
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MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940101		19940131		20.2
	4.9	0.0127	0.0257	0.68	1.37	0.33	0.67	0.32	0.65	2.53	5.11	0.024
	0.048	1.39	2.81	0.06	0.12	0.17	0.34	0.05	0.1			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940201		19940228		9.3
	4.6	0.0243	0.0227	0.62	0.58	0.52	0.49	0.72	0.67	0.84	0.78	0.084
	0.078	0.42	0.39	0.06	0.06	0.06	0.06	0.03	0.03			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940301		19940331		24.5
	5	0.0111	0.0272	0.49	1.2	0.37	0.91	0.23	0.56	0.77	1.89	0.035
	0.086	0.49	1.2	0.08	0.2	0.06	0.15	0.01	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940401		19940430		12.4
	4.8	0.0169	0.0209	0.68	0.84	0.62	0.77	0.35	0.43	0.42	0.52	0.091
	0.113	0.24	0.3	0.03	0.04	0.04	0.05	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940501		19940531		18.3
	4.8	0.0164	0.03	0.73	1.34	0.68	1.25	0.41	0.75	0.42	0.77	0.108
	0.198	0.22	0.4	0.03	0.05	0.03	0.05	0.02	0.04			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940601		19940630		12.1
	4.8	0.0146	0.0177	0.6	0.73	0.58	0.7	0.48	0.58	0.16	0.19	0.099
	0.12	0.08	0.1	0.04	0.05	0.02	0.02	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940701		19940731		9
	4.5	0.0319	0.0288	1.16	1.05	1.14	1.03	0.86	0.78	0.16	0.14	0.133
	0.12	0.08	0.07	0.03	0.03	0.01	0.01	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940801		19940831		5.9
	4.6	0.0242	0.0143	0.95	0.56	0.93	0.55	0.55	0.32	0.21	0.12	0.107
	0.063	0.11	0.06	0.02	0.01	0.02	0.01	0.02	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19940901		19940930		17.5
	4.5	0.0325	0.0567	1.44	2.51	1.4	2.44	0.58	1.01	0.35	0.61	0.155
	0.27	0.18	0.31	0.02	0.03	0.03	0.05	0.01	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19941001		19941031		8.3
	4.8	0.0162	0.0134	0.64	0.53	0.58	0.48	0.42	0.35	0.41	0.34	0.063
	0.052	0.23	0.19	0.02	0.02	0.03	0.02	0.02	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19941101		19941130		18.2
	4.8	0.016	0.0291	0.78	1.42	0.58	1.06	0.39	0.71	1.47	2.67	0.055
	0.1	0.82	1.49	0.04	0.07	0.1	0.18	0.03	0.05			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19941201		19941231		10.4
	4.9	0.0123	0.0128	0.26	0.27	0.23	0.24	0.4	0.41	0.24	0.25	0.015
	0.016	0.13	0.13	0.02	0.02	0.02	0.02	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19950101		19950131		19.4
	5.1	0.0089	0.0172	0.44	0.85	0.27	0.52	0.21	0.41	1.21	2.34	0.015
	0.029	0.67	1.3	0.03	0.06	0.08	0.16	0.03	0.06			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19950201		19950228		13.2
	4.8	0.0156	0.0206	0.55	0.72	0.43	0.57	0.49	0.65	0.87	1.15	0.035
	0.046	0.48	0.63	0.03	0.04	0.06	0.08	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19950301		19950331		11.6
	4.9	0.0132	0.0152	0.56	0.65	0.43	0.5	0.26	0.3	0.98	1.13	0.068
	0.079	0.49	0.57	0.03	0.03	0.07	0.08	0.02	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19950401		19950430		8.1
	4.7	0.018	0.0146	0.76	0.61	0.72	0.58	0.36	0.29	0.28	0.23	0.075
	0.061	0.16	0.13	0.04	0.03	0.03	0.02	0.02	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19950501		19950531		3.5
	4.7	0.0185	0.0065	0.58	0.2	0.57	0.2	0.49	0.17	0.13	0.05	0.094
	0.033	0.05	0.02	0.03	0.01	0.01	0	0.01	0			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19950601		19950630		9.8
	4.7	0.0183	0.0179	0.71	0.7	0.64	0.63	0.52	0.51	0.54	0.53	0.103
	0.101	0.31	0.3	0.04	0.04	0.04	0.04	0.03	0.03			

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MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19950701      19950731      15.1
   4.6   0.0247  0.0372  0.71    1.07    0.69    1.04    0.63    0.95  0.15    0.23  0.116
 0.175   0.07    0.11    0.01    0.02    0.01    0.02    0.02    0.03
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19950801      19950831      10.6
     .   .       .       .       .       .       .       .       .     .       .     .
     .   .       .       .       .       .       .       .       .
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19950901      19950930      16.5
   4.8   0.0163  0.0268  0.6     0.99    0.55    0.91    0.37    0.61  0.29    0.48  0.069
 0.114   0.16    0.26    0.02    0.03    0.02    0.03    0.01    0.02
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19951001      19951031      12.7
   4.9   0.0142  0.0181  0.78    0.99    0.56    0.71    0.44    0.56  1.54    1.96  0.071
  0.09   0.86    1.09    0.06    0.08    0.1     0.13    0.07    0.09
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19951101      19951130      20.5
     5   0.0099  0.0203  0.36    0.74    0.26    0.53    0.21    0.43  0.7     1.43  0.021
 0.043   0.37    0.76    0.02    0.04    0.05    0.1     0.02    0.04
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19951201      19951231      11.3
   5.1   0.0083  0.0093  0.41    0.46    0.25    0.28    0.22    0.25  1.1     1.24  0.018
  0.02   0.63    0.71    0.03    0.03    0.08    0.09    0.02    0.02
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960101      19960131      13.8
   5.2   0.0062  0.0085  0.34    0.47    0.18    0.25    0.16    0.22  1.16    1.6   0.018
 0.025   0.63    0.87    0.05    0.07    0.07    0.1     0.04    0.06
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960201      19960229      21.2
     .   .       .       .       .       .       .       .       .     .       .     .
     .   .       .       .       .       .       .       .       .
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960301      19960331      9
   4.8   0.0155  0.0139  1.09    0.98    0.69    0.62    0.3     0.27  2.89    2.59  0.059
 0.053   1.6     1.44    0.08    0.07    0.19    0.17    0.06    0.05
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960401      19960430      9.1
     5   0.0113  0.0103  0.55    0.5     0.46    0.42    0.25    0.23  0.61    0.56  0.064
 0.058   0.36    0.33    0.04    0.04    0.05    0.05    0.02    0.02
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960501      19960531      10.8
   4.8   0.0173  0.0186  0.71    0.77    0.67    0.72    0.59    0.64  0.31    0.33  0.124
 0.134   0.15    0.16    0.05    0.05    0.03    0.03    0.02    0.02
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960601      19960630      6.8
   4.8   0.015   0.0102  0.45    0.31    0.44    0.3     0.44    0.3   0.11    0.07  0.095
 0.065   0.06    0.04    0.04    0.03    0.01    0.01    0.03    0.02
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960701      19960731      24.6
   4.9   0.0114  0.028   0.55    1.35    0.43    1.06    0.36    0.89  0.84    2.07  0.069
  0.17   0.49    1.2     0.02    0.05    0.06    0.15    0.03    0.07
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960801      19960831      6.6
   4.5   0.0327  0.0214  1.19    0.78    1.16    0.76    0.86    0.56  0.2     0.13  0.164
 0.107   0.11    0.07    0.09    0.06    0.02    0.01    0.02    0.01
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19960901      19960930      15.7
   5.1   0.0073  0.0115  0.31    0.49    0.27    0.42    0.19    0.3   0.28    0.44  0.02
 0.031   0.16    0.25    0.01    0.02    0.02    0.03    0.02    0.03
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19961001      19961031      8.5
     5   0.0109  0.0092  0.72    0.61    0.6     0.51    0.36    0.3   0.91    0.77  0.055
 0.046   0.46    0.39    .       .       0.06    0.05    0.08    0.07
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19961101      19961130      11.6
   5.1   0.0082  0.0095  0.47    0.54    0.29    0.34    0.22    0.27  1.38    1.6   0.017
 0.021   0.76    0.88    0.03    0.03    0.1     0.12    0.03    0.03
MONTH    CAPM84421B      Bay d'Espoir B  47.992  55.817  19961201      19961231      17.1
     5   0.0093  0.0178  0.52    1       0.31    0.59    0.28    0.54  1.42    2.72  0.015
 0.026   0.83    1.59    0.04    0.08    0.1     0.19    0.04    0.08
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MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970101		19970131		23
	5.1	0.0086	0.0197	0.59	1.35	0.22	0.51	0.22	0.51	2.49	5.72	0.017
	0.039	1.48	3.4	0.05	0.11	0.17	0.39	0.05	0.11			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970201		19970228		8.1
	4.8	0.0164	0.0134	0.34	0.28	0.3	0.24	0.77	0.63	0.27	0.22	0.06
	0.049	0.16	0.14	0.02	0.02	0.02	0.02	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970301		19970331		12.1
	4.9	0.0119	0.0144	0.78	0.94	0.41	0.5	0.4	0.48	2.47	2.99	0.038
	0.046	1.48	1.79	0.06	0.07	0.18	0.22	0.05	0.06			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970401		19970430		9.1
	5	0.0098	0.0101	0.42	0.38	0.38	0.34	0.25	0.26	0.33	0.34	0.054
	0.049	0.18	0.19	0.02	0.02	0.02	0.02	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970501		19970531		12.4
	4.7	0.02	0.0261	0.85	1.11	0.77	0.95	0.42	0.55	0.3	0.37	0.087
	0.108	0.18	0.22	0.02	0.02	0.02	0.02	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970601		19970630		9.2
	4.5	0.0348	0.0322	1.21	1.12	1.19	1.1	1.13	1.04	0.2	0.18	0.18
	0.166	0.09	0.08	0.04	0.04	0.02	0.02	0.02	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970701		19970731		9.6
	4.7	0.0189	0.0182	0.66	0.64	0.64	0.62	0.44	0.42	0.21	0.2	0.078
	0.075	0.07	0.07	0.02	0.02	0.01	0.01	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970801		19970831		9.3
	4.8	0.0172	0.0161	0.68	0.64	0.64	0.6	0.4	0.37	0.3	0.28	0.071
	0.066	0.16	0.15	0.03	0.03	0.02	0.02	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19970901		19970930		23.4
	4.7	0.0186	0.0436	0.74	1.73	0.66	1.55	0.41	0.96	0.6	1.41	0.077
	0.18	0.31	0.73	0.06	0.14	0.04	0.09	0.02	0.05			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19971001		19971031		8.4
	4.7	0.0216	0.0181	0.96	0.8	0.86	0.72	0.7	0.59	0.74	0.62	0.088
	0.074	0.41	0.34	0.07	0.06	0.06	0.05	0.03	0.03			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19971101		19971130		13.4
	5.2	0.007	0.0094	0.21	0.28	0.15	0.2	0.2	0.27	0.42	0.56	0.009
	0.012	0.24	0.32	0.02	0.03	0.03	0.04	0.01	0.01			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19971201		19971231		11.5
	4.9	0.0118	0.0141	0.41	0.49	0.23	0.27	0.38	0.45	1.24	1.42	0.011
	0.013	0.65	0.77	0.04	0.05	0.08	0.1	0.03	0.03			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19980101		19980131		10.9
	4.9	0.0118	0.0129	0.48	0.52	0.34	0.37	0.28	0.31	1	1.09	0.027
	0.029	0.56	0.61	0.04	0.04	0.07	0.08	0.03	0.03			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19980201		19980228		7.9
	5	0.0111	0.0088	0.5	0.4	0.41	0.32	0.2	0.17	0.6	0.5	0.026
	0.021	0.37	0.31	0.03	0.02	0.05	0.04	0.02	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19980301		19980331		15.7
	5	0.0108	0.017	0.6	0.94	0.46	0.72	0.27	0.42	0.99	1.55	0.051
	0.08	0.57	0.89	0.06	0.09	0.07	0.11	0.03	0.05			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19980401		19980430		25.9
	5.1	0.0086	0.0223	0.31	0.8	0.26	0.67	0.21	0.54	0.3	0.78	0.039
	0.101	0.16	0.41	0.04	0.1	0.02	0.05	0.01	0.03			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19980501		19980531		8.1
	4.7	0.022	0.0179	1.01	0.82	0.94	0.76	0.68	0.55	0.5	0.41	0.163
	0.132	0.28	0.23	0.05	0.04	0.04	0.03	0.03	0.02			
MONTH		CAPM84421B		Bay d'Espoir B		47.992	55.817	19980601		19980630		8.4
	4.7	0.0213	0.0178	0.67	0.56	0.65	0.54	0.56	0.47	0.19	0.16	0.09
	0.075	0.09	0.08	0.02	0.02	0.01	0.01	0.01	0.01			

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MONTH       CAPM84421B      Bay d'Espoir B  47.992  55.817  19980701        19980731        8.4
      4.7   0.0184  0.0155  0.7     0.59    0.67    0.56    0.49    0.41    0.23    0.19    0.071
      0.06  0.12    0.1     0.02    0.02    0.02    0.02    0.01    0.01
MONTH       CAPM84421B      Bay d'Espoir B  47.992  55.817  19980801        19980831        9.7
      4.8   0.0161  0.0156  0.68    0.66    0.62    0.6     0.48    0.47    0.42    0.41    0.06
      0.058 0.23    0.22    0.02    0.02    0.03    0.03    0.02    0.02
MONTH       CAPM84421B      Bay d'Espoir B  47.992  55.817  19980901        19980930        20.3
      4.7   0.018   0.0366  0.89    1.81    0.81    1.65    0.42    0.85    0.58    1.18    0.09
      0.183 0.33    0.67    0.03    0.06    0.04    0.08    0.03    0.06
MONTH       CAPM84421B      Bay d'Espoir B  47.992  55.817  19981001        19981031        11.1
      .     .       .       .       .       .       .       .       .       .       .       .

      .     .       .       .       .       .       .       .       .
MONTH       CAPM84421B      Bay d'Espoir B  47.992  55.817  19981101        19981130        14.7
      5.2   0.0071  0.0104  0.3     0.44    0.2     0.29    0.21    0.31    0.66    0.97    0.014
      0.021 0.33    0.48    0.02    0.03    0.04    0.06    0.02    0.03
MONTH       CAPM84421B      Bay d'Espoir B  47.992  55.817  19981201        19981231        15.5
      4.8   0.0146  0.0226  0.75    1.16    0.59    0.91    0.47    0.73    1.21    1.87    0.053
      0.082 0.67    1.04    0.05    0.08    0.08    0.12    0.03    0.05
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SUMPR	SITEID	SITENAME		LAT	LON	STARTPER		ENDPER		TOTPRCP		pH
	HPLCN	HPLDP	SO4CN	SO4DP	XSO4CN		XSO4DP		NO3CN	NO3DP	CLDN	CLDP
	NH4CN	NH4DP	NACN	NADP	CACN	CADP	MGCN	MGDP	KCN	KDP		
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19830701		19830930		50.5	4.7
	0.0197	0.0994	0.93	4.69	0.86	4.34	0.38	1.92	.	.	.	.
	.	.	0.09	0.45	0.04	0.21	0.03	0.15				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19831001		19831231		34	4.8
	0.015	0.051	0.91	3.09	0.65	2.21	0.27	0.92	2	6.79	.	.
	1.34	4.55	0.16	0.54	0.13	0.44	0.11	0.37				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19840101		19840331		55.7	5.2
	0.0067	0.0373	0.79	4.4	0.59	3.29	0.18	1	1.48	8.25	.	.
	.	.	0.26	1.45	0.1	0.56	0.07	0.39				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19840401		19840630		39.3	4.9
	0.0139	0.0547	0.94	3.7	0.85	3.34	0.36	1.42	0.68	2.68	.	.
	.	.	.	.	0.06	0.24	0.05	0.2				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19840701		19840930		43.8	4.9
	0.0131	0.0574	1.13	4.95	1.03	4.51	0.38	1.66	.	.	0.091	0.399
	.	.	0.39	1.71	0.07	0.31	0.08	0.35				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19841001		19841231		26.4	5
	0.0109	0.0288	0.96	2.53	0.76	2.01	0.31	0.82	1.5	3.96	0.046	0.121
	1.06	2.8	0.12	0.32	0.08	0.21	0.11	0.29				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19850101		19850331		29	4.7
	0.0193	0.056	1.11	3.22	0.82	2.38	0.34	0.99	2.03	5.89	0.11	0.319
	1.18	3.42	0.08	0.23	0.12	0.35	0.05	0.15				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19850401		19850630		43.3	4.7
	0.0191	0.0827	0.91	3.94	0.84	3.64	0.46	1.99	0.5	2.17	0.085	0.368
	0.28	1.21	0.09	0.4	0.04	0.17	0.02	0.09				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19850701		19850930		34.4	4.5
	0.0313	0.1076	0.83	2.85	0.81	2.78	0.48	1.65	0.15	0.52	0.104	0.357
	0.05	0.17	0.02	0.07	0.01	0.03	0.02	0.07				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19851001		19851231		30.4	4.9
	0.0129	0.0392	0.53	1.61	0.41	1.24	0.32	0.97	0.83	2.52	0.038	0.115
	0.49	1.49	0.04	0.12	0.05	0.15	0.06	0.18				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19860101		19860331		47	.
	.	.	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19860401		19860630		35.6	4.5
	0.0303	0.1079	1.09	3.88	1.05	3.74	0.52	1.85	0.29	1.03	0.119	0.424
	0.15	0.53	0.04	0.14	0.02	0.07	0.01	0.04				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19860701		19860930		30.6	4.7
	0.0212	0.0649	0.64	1.96	0.59	1.81	0.38	1.16	0.44	1.35	0.052	0.159
	0.25	0.77	0.02	0.06	0.03	0.09	0.02	0.06				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19861001		19861231		32.7	4.9
	0.014	0.0457	0.51	1.67	0.44	1.44	0.34	1.11	0.49	1.6	0.05	0.163
	0.28	0.91	0.02	0.07	0.03	0.1	0.03	0.1				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19870101		19870331		31.2	5
	0.0113	0.0352	0.45	1.4	0.34	1.06	0.28	0.87	0.79	2.46	0.023	0.072
	0.48	1.5	0.03	0.09	0.05	0.16	0.04	0.12				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19870401		19870630		31.8	4.9
	0.012	0.0381	0.56	1.78	0.51	1.62	0.34	1.08	0.33	1.05	0.063	0.2
	0.2	0.64	0.03	0.1	0.02	0.06	0.03	0.1				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19870701		19870930		18.1	4.5
	0.0314	0.0567	1.66	3	1.51	2.73	0.67	1.21	1.06	1.91	0.149	0.269
	0.64	1.16	0.06	0.11	0.08	0.14	0.04	0.07				

QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19871001		19871231		55.5	5.2
	0.0067	0.0372	0.48	2.66	0.21	1.16	0.16	0.89	1.96	10.87	0.015	0.083
	1.1	6.1	0.05	0.28	0.13	0.72	0.04	0.22				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19880101		19880331		55	5
	0.011	0.0605	0.57	3.13	0.39	2.14	0.25	1.37	1.24	6.82	0.051	0.28
	0.76	4.18	0.06	0.33	0.07	0.38	0.08	0.44				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19880401		19880630		34.8	4.6
	0.0245	0.0853	1.22	4.25	1.16	4.04	0.63	2.19	0.45	1.57	0.165	0.575
	0.26	0.91	0.05	0.17	0.03	0.1	0.02	0.07				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19880701		19880930		28.5	4.7
	0.0214	0.061	1.2	3.42	1.14	3.25	0.54	1.54	0.44	1.25	0.141	0.402
	0.26	0.74	0.05	0.14	0.03	0.09	0.02	0.06				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19881001		19881231		37.8	4.8
	0.0171	0.0646	0.81	3.06	0.6	2.27	0.58	2.19	1.41	5.33	0.051	0.193
	0.84	3.17	0.05	0.19	0.1	0.38	0.04	0.15				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19890101		19890331		41.9	4.9
	0.0116	0.0486	0.6	2.51	0.46	1.93	0.39	1.63	0.91	3.81	0.038	0.159
	0.53	2.22	0.1	0.42	0.05	0.21	0.07	0.29				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19890401		19890630		22.1	4.7
	0.0187	0.0413	0.86	1.9	0.81	1.79	0.46	1.02	0.5	1.12	0.089	0.197
	0.28	0.63	0.04	0.09	0.03	0.07	0.02	0.04				
QUART	CAPM84421A		Bay d'Espoir		47.992	55.817	19890701		19890930		36.8	4.9
	0.0127	0.0468	0.6	2.21	0.53	1.95	0.3	1.1	0.48	1.77	0.062	0.228
	0.28	1.03	0.03	0.11	0.03	0.11	0.02	0.07				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19891001		19891231		42.6	4.8
	0.0167	0.0712	1.04	4.43	0.64	2.73	0.46	1.96	2.7	11.51	0.055	0.235
	1.6	6.82	0.07	0.3	0.19	0.81	0.07	0.3				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19900101		19900331		34.8	4.7
	0.0215	0.0749	0.75	2.61	0.65	2.26	0.66	2.3	0.9	3.13	0.079	0.275
	0.57	1.98	0.04	0.14	0.06	0.21	0.03	0.1				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19900401		19900630		48.3	4.9
	0.0126	0.0608	0.53	2.56	0.48	2.32	0.32	1.54	0.31	1.5	0.057	0.275
	0.19	0.92	0.02	0.1	0.02	0.1	0.01	0.05				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19900701		19900930		29.3	.
	.	.	.	.	.	.	.	.	.	.	0.065	0.191
	.	.	.	.	.	.	.	.				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19901001		19901231		60.7	4.9
	0.0128	0.0777	0.67	4.07	0.49	2.97	0.31	1.88	1.2	7.28	0.034	0.206
	0.77	4.67	0.04	0.24	0.09	0.55	0.03	0.18				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19910101		19910331		48.9	.
	.	.	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19910401		19910630		21.5	4.5
	0.0352	0.0757	1.66	3.57	1.61	3.46	0.91	1.96	0.42	0.9	0.215	0.462
	0.23	0.49	0.06	0.13	0.03	0.06	0.02	0.04				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19910701		19910930		29.5	4.8
	0.0171	0.0505	0.79	2.33	0.75	2.22	0.42	1.24	0.3	0.89	0.064	0.189
	0.15	0.44	0.03	0.09	0.02	0.06	0.01	0.03				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19911001		19911231		47	4.9
	0.0119	0.0559	0.47	2.21	0.39	1.83	0.27	1.27	0.63	2.96	0.016	0.075
	0.35	1.64	0.02	0.09	0.04	0.19	0.01	0.05				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19920101		19920331		56.5	4.9
	0.0135	0.0763	0.7	3.96	0.45	2.54	0.35	1.98	1.78	10.06	0.041	0.232
	1	5.65	0.05	0.28	0.12	0.68	0.04	0.23				

QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19920401		19920630		31.4	4.6
	0.0243	0.0764	1.06	3.33	1.02	3.21	0.52	1.63	0.33	1.04	0.115	0.362
	0.18	0.57	0.03	0.09	0.03	0.09	0.02	0.06				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19920701		19920930		30.7	4.6
	0.023	0.0706	0.99	3.04	0.97	2.98	0.41	1.26	0.16	0.49	0.083	0.255
	0.07	0.21	0.01	0.03	0.01	0.03	0.01	0.03				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19921001		19921231		41.1	4.8
	0.0174	0.0715	0.87	3.58	0.66	2.71	0.48	1.97	1.51	6.21	0.055	0.226
	0.86	3.53	0.05	0.21	0.1	0.41	0.03	0.12				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19930101		19930331		53.7	5
	0.0099	0.0532	0.39	2.09	0.27	1.45	0.22	1.18	0.74	3.97	0.018	0.097
	0.46	2.47	0.03	0.16	0.06	0.32	0.02	0.11				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19930401		19930630		40.7	4.7
	0.0216	0.0879	0.74	3.01	0.66	2.69	0.46	1.87	0.55	2.24	0.092	0.374
	0.31	1.26	0.04	0.16	0.04	0.16	0.02	0.08				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19930701		19930930		39.6	4.8
	0.017	0.0673	0.45	1.78	0.42	1.66	0.4	1.58	0.2	0.79	0.059	0.234
	0.11	0.44	0.02	0.08	0.02	0.08	0.02	0.08				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19931001		19931231		75.9	4.9
	0.0125	0.0949	0.66	5.01	0.37	2.81	0.33	2.5	2.12	16.09	0.031	0.235
	1.18	8.96	0.06	0.46	0.15	1.14	0.06	0.46				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19940101		19940331		54.1	4.9
	0.0141	0.0762	0.58	3.13	0.38	2.05	0.35	1.89	1.45	7.84	0.04	0.216
	0.82	4.43	0.07	0.38	0.1	0.54	0.03	0.16				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19940401		19940630		42.8	4.8
	0.0161	0.0689	0.68	2.91	0.63	2.7	0.41	1.75	0.34	1.45	0.101	0.432
	0.19	0.81	0.03	0.13	0.03	0.13	0.01	0.04				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19940701		19940930		32.4	4.5
	0.0308	0.0997	1.27	4.11	1.24	4.01	0.65	2.1	0.27	0.87	0.14	0.453
	0.14	0.45	0.02	0.06	0.02	0.06	0.02	0.06				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19941001		19941231		36.8	4.8
	0.0151	0.0556	0.62	2.28	0.49	1.8	0.4	1.47	0.91	3.35	0.047	0.173
	0.51	1.88	0.03	0.11	0.06	0.22	0.02	0.07				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19950101		19950331		44.1	4.9
	0.0118	0.052	0.5	2.21	0.36	1.59	0.3	1.32	1.06	4.68	0.035	0.154
	0.57	2.51	0.03	0.13	0.07	0.31	0.02	0.09				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19950401		19950630		21.4	4.7
	0.0182	0.039	0.71	1.52	0.66	1.41	0.45	0.96	0.37	0.79	0.091	0.195
	0.21	0.45	0.04	0.09	0.03	0.06	0.02	0.04				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19950701		19950930		42.2	4.7
	0.0187	0.0789	0.61	2.57	0.56	2.36	0.47	1.98	0.32	1.35	0.087	0.367
	0.17	0.72	0.02	0.08	0.02	0.08	0.02	0.08				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19951001		19951231		44.5	5
	0.0107	0.0476	0.49	2.18	0.34	1.51	0.28	1.25	1.04	4.62	0.034	0.151
	0.58	2.58	0.03	0.13	0.07	0.31	0.03	0.13				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19960101		19960331		43.9	5
	0.0111	0.0487	0.65	2.85	0.4	1.76	0.3	1.32	1.81	7.95	0.044	0.193
	0.99	4.35	0.06	0.26	0.11	0.48	0.04	0.18				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19960401		19960630		26.7	4.8
	0.0147	0.0393	0.59	1.58	0.54	1.44	0.44	1.18	0.36	0.96	0.096	0.257
	0.2	0.53	0.04	0.11	0.03	0.08	0.02	0.05				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19960701		19960930		46.9	4.9
	0.0129	0.0605	0.56	2.62	0.47	2.2	0.37	1.73	0.56	2.62	0.065	0.305
	0.32	1.5	0.03	0.14	0.04	0.19	0.02	0.09				

QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19961001		19961231		37.1	5
	0.0093	0.0345	0.54	2.01	0.37	1.37	0.28	1.11	1.3	5.17	0.024	0.089
	0.73	2.9	0.04	0.15	0.09	0.33	0.04	0.15				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19970101		19970331		43.2	5
	0.011	0.0475	0.6	2.59	0.29	1.25	0.37	1.6	2.09	9.03	0.03	0.13
	1.24	5.36	0.05	0.22	0.15	0.65	0.05	0.22				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19970401		19970630		30.7	4.7
	0.0211	0.0648	0.82	2.52	0.78	2.39	0.57	1.75	0.28	0.92	0.105	0.322
	0.16	0.52	0.02	0.06	0.02	0.06	0.01	0.03				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19970701		19970930		42.4	4.7
	0.0184	0.078	0.71	3.01	0.65	2.76	0.42	1.78	0.45	1.91	0.076	0.322
	0.22	0.93	0.04	0.17	0.03	0.13	0.02	0.08				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19971001		19971231		33.2	4.9
	0.0116	0.0385	0.45	1.5	0.34	1.13	0.39	1.33	0.79	2.63	0.028	0.093
	0.41	1.36	0.04	0.13	0.05	0.17	0.02	0.07				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19980101		19980331		34.5	5
	0.0112	0.0387	0.54	1.86	0.41	1.42	0.26	0.9	0.9	3.11	0.038	0.131
	0.52	1.8	0.05	0.17	0.06	0.21	0.03	0.1				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19980401		19980630		42.4	4.9
	0.0137	0.058	0.51	2.16	0.47	1.99	0.37	1.57	0.31	1.31	0.073	0.309
	0.17	0.72	0.04	0.17	0.02	0.08	0.01	0.04				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19980701		19980930		38.5	4.8
	0.0176	0.0677	0.79	3.04	0.73	2.81	0.45	1.73	0.46	1.77	0.078	0.3
	0.26	1	0.03	0.12	0.03	0.12	0.02	0.08				
QUART	CAPM84421B		Bay d'Espoir B		47.992	55.817	19981001		19981231		41.2	5
	0.0109	0.0449	0.54	2.22	0.41	1.69	0.33	1.36	0.92	3.79	0.032	0.132
	0.49	2.02	0.04	0.16	0.06	0.25	0.03	0.12				

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SUMPR     SITEID    SITENAME            LAT       LON       STARTPER            ENDPER              TOTPRCP             pH
          HPLCN     HPLDP     SO4CN     SO4DP     XSO4CN              XSO4DP              NO3CN     NO3DP     CLDN      CLDP
          NH4CN     NH4DP     NACN      NADP      CACN      CADP      MGCN      MGDP      KCN       KDP
YEAR      CAPM84421A          Bay d'Espoir        47.992    55.817    19840101            19841231            165.3     5
          0.011     0.1818    0.94      15.54     0.79      13.06     0.3       4.96      1.1       18.18     .         .
          .         .         0.26      4.3       0.08      1.32      0.08      1.32
YEAR      CAPM84421A          Bay d'Espoir        47.992    55.817    19850101            19851231            137       4.7
          0.0209    0.2864    0.84      11.51     0.73      10        0.41      5.62      0.8       10.96     0.084     1.151
          0.45      6.17      0.06      0.82      0.05      0.69      0.04      0.55
YEAR      CAPM84421A          Bay d'Espoir        47.992    55.817    19860101            19861231            145.9     4.7
          0.0206    0.3005    0.76      11.09     0.66      9.63      0.39      5.69      0.72      10.5      0.066     0.963
          0.41      5.98      0.04      0.59      0.05      0.73      0.03      0.44
YEAR      CAPM84421A          Bay d'Espoir        47.992    55.817    19870101            19871231            136.5     4.9
          0.0119    0.1624    0.64      8.73      0.47      6.41      0.29      3.96      1.21      16.51     0.044     0.6
          0.69      9.42      0.04      0.55      0.08      1.09      0.04      0.55
YEAR      CAPM84421A          Bay d'Espoir        47.992    55.817    19880101            19881231            156.1     4.8
          0.0178    0.2778    0.92      14.36     0.78      12.17     0.49      7.65      0.93      14.51     0.096     1.498
          0.56      8.74      0.05      0.78      0.06      0.94      0.04      0.62
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19900101            19901231            173.1     4.8
          0.0155    0.2683    0.69      11.94     0.56      9.69      0.41      7.1       0.84      14.54     0.053     0.917
          0.53      9.17      0.03      0.52      0.06      1.04      0.03      0.52
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19910101            19911231            146.9     4.8
          0.0164    0.2409    0.72      10.57     0.64      9.4       0.41      6.02      0.58      8.52      0.06      0.881
          0.31      4.55      0.03      0.44      0.04      0.59      0.02      0.29
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19920101            19921231            159.7     4.7
          0.0186    0.2971    0.87      13.9      0.72      11.5      0.43      6.87      1.08      17.25     0.069     1.102
          0.6       9.58      0.04      0.64      0.07      1.12      0.03      0.48
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19930101            19931231            209.9     4.8
          0.0148    0.3106    0.58      12.17     0.42      8.81      0.35      7.35      1.11      23.3      0.047     0.986
          0.63      13.22     0.04      0.84      0.08      1.68      0.03      0.63
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19940101            19941231            166       4.7
          0.0181    0.3005    0.75      12.45     0.64      10.63     0.44      7.31      0.81      13.45     0.077     1.278
          0.45      7.47      0.04      0.66      0.06      1         0.02      0.33
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19950101            19951231            152.2     4.9
          0.0142    0.2161    0.56      8.52      0.45      6.85      0.36      5.48      0.77      11.72     0.056     0.852
          0.42      6.39      0.03      0.46      0.05      0.76      0.03      0.46
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19960101            19961231            154.6     4.9
          0.0119    0.184     0.58      8.97      0.44      6.8       0.34      5.26      1.01      15.62     0.055     0.851
          0.56      8.66      0.04      0.62      0.07      1.08      0.03      0.46
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19970101            19971231            149.5     4.8
          0.0153    0.2288    0.64      9.57      0.51      7.63      0.42      6.28      0.95      14.21     0.058     0.867
          0.54      8.07      0.04      0.6       0.07      1.05      0.02      0.3
YEAR      CAPM84421B          Bay d'Espoir B      47.992    55.817    19980101            19981231            156.5     4.9
          0.0134    0.2097    0.59      9.23      0.51      7.98      0.35      5.48      0.63      9.86      0.056     0.877
          0.35      5.48      0.04      0.63      0.05      0.78      0.02      0.31
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Goose Bay, Newfoundland

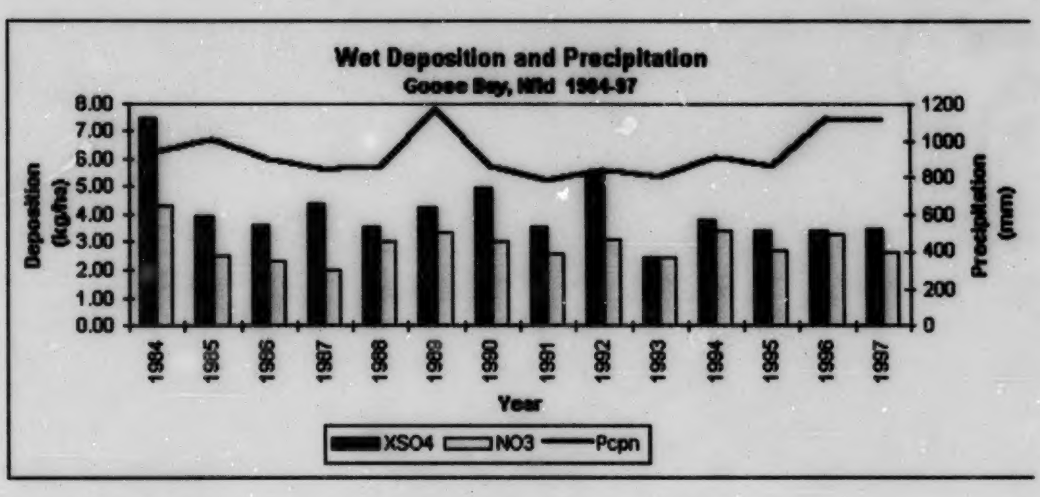
CAPM84152A Goose Bay 10/01/83 10/02/88

The Goose Bay site was located in remote east-central Labrador at the Goose Bay Upper Level Air weather station on the edge of the village of Goose Bay. The site was in a fenced compound measuring 20 x 30 metres and was surrounded by 3-metre-high alder bushes on the north, east and west sides. The site was open to the south where a 6-metre-high weather station building was located 40 metres from the CAPMoN collector. In all directions from the site, sparse coniferous trees were predominant at 100 metres. The immediate area around the collector was flat and covered by moss and grass with some exposed soil and sand. The general topography of the area was flat with the salt water body of Goose Bay 5 km to the north and east. There were urban areas beyond the trees to the west and the southeast, and the Goose Bay Airport (mainly military traffic) was 3.5 km west of the site. A lightly travelled paved road was 0.5 km northwest and a parking lot was 30 metres north. The Goose Bay site was relocated to the Goose Bay B site in October, 1988 due to a build-up of urban areas near the site.

CAPM84152A Goose Bay B 10/02/88 / /

The Goose Bay B site is located in remote east-central Labrador at the Goose Bay Upper Level Air weather station on the edge of the village of Goose Bay. The site is in a fenced compound measuring 20 x 30 metres and is surrounded by 3-metre-high alder bushes on the north, east and west sides. The site is open to the south where a 6-metre-high weather station building is located 40 metres from the CAPMoN collector. In all directions from the site, sparse coniferous trees are predominant at 100 metres. The immediate area around the collector is flat and covered by moss and grass with some exposed soil and sand. The general topography of the area is flat with the salt water body of Goose Bay 5 km to the north and east. There are urban areas beyond the trees to the west and the southeast and the Goose Bay Airport (mainly military traffic) is 3.5 km west of the site.

Graph



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Monthly Data

- Data as Excel File
- Data as Dbase File

Quarterly Data

- Data as Excel File
- Data as Dbase File

Yearly Data

- Data as Excel File
- Data as Dbase File

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SUMPR     SITEID    SITENAME            LAT       LON       STARTPER            ENDPER              TOTPRCP             pH
          HPLCN     HPLDP     SO4CN     SO4DP     XSO4CN              XSO4DP              NO3CN     NO3DP     CLDN      CLDP
          NH4CN     NH4DP     NACN      NADP      CACN      CADP      MGCN      MGDP      KCN       KDP
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19831001            19831031            9.1
          5.1       0.0077    0.007     0.65      0.59      0.59      0.54      0.2       0.18      .         .         .
          .         .         .         0.17      0.15      0.04      0.04      0.02      0.02
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19831101            19831130            19.4
          5.4       0.0045    0.0087    0.45      0.87      0.36      0.7       0.21      0.41      .         .         .
          .         .         .         0.13      0.25      0.03      0.06      0.05      0.1
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19831201            19831231            11.4
          4.5       0.0335    0.0381    0.38      0.43      0.34      0.39      0.44      0.5       .         .         .
          .         .         .         0.06      0.07      0.01      0.01      0.03      0.03
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840101            19840131            2.8
          4.3       0.0498    0.014     1.28      0.36      1.26      0.35      1.82      0.51      .         .         .
          .         .         .         0.05      0.01      0.01      0         0.01      0
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840201            19840229            7.4
          4.4       0.0404    0.0298    1.24      0.91      1.18      0.87      1.49      1.1       .         .         .
          .         .         .         0.13      0.1       0.03      0.02      0.03      0.02
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840301            19840331            7
          5.3       0.0055    0.0039    1.08      0.76      0.97      0.68      0.34      0.24      .         .         0.091
          0.064     .         .         0.4       0.28      0.06      0.04      0.04      0.03
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840401            19840430            6.5
          5.6       0.0028    0.0018    0.44      0.29      0.36      0.24      0.06      0.04      0.23      0.15      .
          .         .         .         0.21      0.14      0.04      0.03      0.01      0.01
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840501            19840531            6.4
          4.8       0.0159    0.0102    1.14      0.73      1.08      0.69      0.4       0.26      .         .         0.166
          0.106     .         .         .         .         0.03      0.02      0.02      0.01
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840601            19840630            12.8
          5.1       0.0089    0.0114    0.54      0.69      0.51      0.65      0.22      0.28      .         .         .
          .         .         .         .         .         0.02      0.03      0.07      0.09
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840701            19840731            9.3
          5         0.0106    0.0099    0.95      0.89      0.87      0.81      0.62      0.58      .         .         .
          .         .         .         0.23      0.21      0.04      0.04      0.02      0.02
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840801            19840831            3
          4.9       0.0116    0.0035    0.46      0.14      0.46      0.14      0.16      0.05      .         .         .
          .         .         .         .         .         0.01      0         0.01      0
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19840901            19840930            12
          4.7       0.0187    0.0224    0.98      1.18      0.95      1.14      0.35      0.42      .         .         .
          .         .         .         0.02      0.02      0.01      0.01      0.02      0.02
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19841001            19841031            4.8
          4.9       0.0115    0.0055    0.81      0.39      0.79      0.38      0.19      0.09      .         .         0.034
          0.016     .         .         0.07      0.03      0.01      0         0.04      0.02
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19841101            19841130            11.2
          4.8       0.0165    0.0185    0.94      1.05      0.92      1.03      0.56      0.63      .         .         0.032
          0.036     .         .         0.03      0.03      0.01      0.01      0.03      0.03
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19841201            19841231            10.7
          4.9       0.0118    0.0126    0.53      0.57      0.46      0.49      0.17      0.18      .         .         0.03
          0.032     0.28      0.3       0.03      0.03      0.03      0.03      0.02      0.02
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19850101            19850131            13.1
          5.3       0.0051    0.0067    0.29      0.38      0.27      0.35      0.11      0.14      0.16      0.21      0.042
          0.055     0.1       0.13      0.04      0.05      0.01      0.01      0.03      0.04
MONTH               CAPM84152A          Goose Bay           53.29     60.388    19850201            19850228            2.6
          .         .         .         .         .         .         .         .         .         .         .         .
          .         .         .         .         .         .         .         .         .
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MONTH      CAPM84152A Goose Bay     53.29   60.388  19850301        19850331        5.7
     4.9   0.0133  0.0076  0.38    0.22    0.35    0.2     0.23    0.13    0.26    0.15    0.022
     0.013 0.12    0.07    0.03    0.02    0.02    0.01    0.02    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19850401        19850430        7
     4.7   0.0182  0.0127  0.53    0.37    0.52    0.36    0.4     0.28    0.1     0.07    0.047
     0.033 0.04    0.03    0.05    0.03    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19850501        19850531        5.4
     4.7   0.0194  0.0105  0.83    0.45    0.82    0.44    0.45    0.24    0.08    0.04    0.084
     0.046 0.03    0.02    0.03    0.02    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19850601        19850630        8.1
     4.9   0.0119  0.0096  0.47    0.38    0.47    0.38    0.27    0.22    0.07    0.06    0.029
     0.023 0.03    0.02    0.04    0.03    0.02    0.02    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19850701        19850731        22.7
     5     0.0092  0.0209  0.26    0.59    0.25    0.57    0.19    0.43    0.06    0.14    0.03
     0.068 0.02    0.05    0.01    0.02    0.01    0.02    0.01    0.02
MONTH      CAPM84152A Goose Bay     53.29   60.388  19850801        19850831        14.3
     4.9   0.0142  0.0203  0.47    0.67    0.46    0.66    0.26    0.37    0.08    0.11    0.036
     0.051 0.03    0.04    0.01    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19850901        19850930        8.4
     5.1   0.0087  0.0073  0.34    0.29    0.33    0.28    0.18    0.15    0.12    0.1     0.024
     0.021 0.03    0.03    0.02    0.02    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19851001        19851031        7.2
     5     0.0103  0.0074  0.35    0.25    0.33    0.24    0.25    0.18    0.11    0.08    0.051
     0.037 0.04    0.03    0.02    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19851101        19851130        2.6
     4.7   0.0198  0.0052  0.64    0.17    0.61    0.16    0.5     0.13    0.29    0.08    0.032
     0.008 0.13    0.03    0.03    0.01    0.02    0.01    0.01    0
MONTH      CAPM84152A Goose Bay     53.29   60.388  19851201        19851231        3.4
     4.9   0.0131  0.0044  0.3     0.1     0.29    0.1     0.41    0.14    0.14    0.05    0.015
     0.005 0.04    0.01    0.02    0.01    0.01    0       0.01    0
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860101        19860131        7.3
     4.9   0.0118  0.0086  0.18    0.13    0.17    0.12    0.34    0.25    0.11    0.08    0.01
     0.007 0.04    0.03    0.01    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860201        19860228        2.4
                                                                                        0.018
     .     .       .       .       .       .       .       .       .       .       .
     0.004 0.15    0.04    0.03    0.01    0.02    0       0.01    0
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860301        19860331        5.1
     4.6   0.0276  0.014   1.44    0.73    1.42    0.72    0.96    0.49    0.11    0.06    0.235
     0.119 0.09    0.05    0.13    0.07    0.02    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860401        19860430        5.9
     4.8   0.0155  0.0091  0.58    0.34    0.56    0.33    0.32    0.19    0.12    0.07    0.096
     0.056 0.07    0.04    0.04    0.02    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860501        19860531        5.2
     4.8   0.0165  0.0085  0.45    0.23    0.45    0.23    0.18    0.09    0.06    0.03    0.054
     0.028 0.04    0.02    0.03    0.02    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860601        19860630        11.2
     4.8   0.0175  0.0195  0.52    0.58    0.51    0.57    0.22    0.25    0.06    0.07    0.056
     0.062 0.02    0.02    0.02    0.02    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860701        19860731        8.9
     4.9   0.0131  0.0117  0.21    0.19    0.21    0.19    0.12    0.11    0.04    0.04    0.032
     0.029 0.02    0.02    0.01    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152A Goose Bay     53.29   60.388  19860801        19860831        12.2
     4.8   0.0176  0.0215  0.46    0.56    0.43    0.53    0.21    0.26    0.15    0.18    0.039
     0.048 0.07    0.09    0.02    0.02    0.01    0.01    0.01    0.01
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MONTH        CAPM84152A  Goose Bay     53.29   60.388  19860901        19860930       12.1
         5   0.0098  0.0119  0.34   0.41   0.34    0.41    0.11    0.13    0.03    0.04   0.036
     0.044   0.02    0.02    0.01   0.01   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19861001        19861031       8.6
         5   0.01    0.0086  0.35   0.33   0.34    0.32    0.18    0.17    0.11    0.09   0.026
     0.024   0.06    0.05    0.01   0.01   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19861101        19861130       6.8
       4.8   0.0168  0.0113  0.32   0.22   0.31    0.21    0.53    0.36    0.11    0.07   0.027
     0.018   0.06    0.04    0.01   0.01   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19861201        19861231       4.4
       5.1   0.0078  0.0035  0.16   0.07   0.14    0.06    0.2     0.09    0.13    0.06   0.011
     0.005   0.07    0.03    0.01   0      0.01    0       0.01    0
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870101        19870131       1.5
         5   0.0097  0.0015  0.28   0.04   0.25    0.04    0.21    0.03    0.2     0.03   0.016
     0.002   0.11    0.02    0.01   0      0.01    0       0.02    0
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870201        19870228       13.8
       5.1   0.0076  0.0105  0.25   0.35   0.21    0.29    0.08    0.11    0.3     0.42   0.026
     0.036   0.17    0.24    0.02   0.03   0.02    0.03    0.02    0.03
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870301        19870331       3.9
       4.5   0.0295  0.0114  1.41   0.54   1.22    0.47    0.44    0.17    1.36    0.52   0.126
     0.05    0.86    0.33    0.06   0.02   0.11    0.04    0.05    0.02
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870401        19870430       2.9
         5   0.0091  0.0026  0.4    0.12   0.39    0.11    0.19    0.06    0.05    0.01   0.035
     0.01    0.03    0.01    0.03   0.01   0.01    0       0.01    0
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870501        19870531       5
       4.8   0.0179  0.009   0.89   0.45   0.88    0.44    0.44    0.22    0.06    0.03   0.11
     0.055   0.04    0.02    0.06   0.03   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870601        19870630       8.3
       5.1   0.0089  0.0074  0.5    0.42   0.49    0.41    0.22    0.18    0.05    0.04   0.039
     0.033   0.04    0.03    0.02   0.02   0.01    0.01    0.05    0.04
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870701        19870731       11.1
       4.7   0.018   0.02    0.72   0.8    0.71    0.79    0.31    0.34    0.06    0.07   0.086
     0.095   0.04    0.04    0.03   0.03   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870801        19870831       8.7
       4.9   0.0126  0.0109  0.54   0.47   0.54    0.47    0.2     0.17    0.03    0.03   0.056
     0.048   0.02    0.02    0.02   0.02   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19870901        19870930       10.6
       4.9   0.0117  0.0124  0.63   0.71   0.6     0.64    0.17    0.19    0.06    0.06   0.079
     0.089   0.04    0.04    0.01   0.01   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19871001        19871031       7.9
       4.7   0.02    0.0158  0.73   0.58   0.69    0.54    0.5     0.39    0.34    0.27   0.075
     0.059   0.17    0.13    0.03   0.02   0.02    0.02    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19871101        19871130       6.1
         .   .       .       0.22   0.14   0.21    0.13    0.29    0.18    0.06    0.04   0.013
     0.008   0.03    0.02    0.02   0.01   0.01    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19871201        19871231       4.2
       5.1   0.0072  0.003   0.21   0.09   0.18    0.08    0.17    0.07    0.21    0.09   0.008
     0.003   0.12    0.05    0.01   0      0.01    0       0.01    0
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19880101        19880131       7
       4.7   0.021   0.0146  0.23   0.16   0.2     0.14    1.06    0.74    0.24    0.17   0.017
     0.012   0.13    0.09    0.03   0.02   0.02    0.01    0.01    0.01
MONTH        CAPM84152A  Goose Bay     53.29   60.388  19880201        19880229       6.2
       4.9   0.012   0.0075  0.36   0.22   0.34    0.21    0.35    0.22    0.14    0.09   0.053
     0.033   0.02    0.01    0.04   0.02   0.01    0.01    0.01    0.01
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MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880301        19880331        8.7
      4.9  0.0119  0.0104  0.46    0.4     0.45    0.39    0.3     0.26    0.07    0.06    0.044
    0.038  0.04    0.03    0.01    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880401        19880430        1
      4.9  0.0139  0.0014  .       .       .       .       .       .       .       .       0.083
    0.008  0.09    0.01    0.08    0.01    0.02    0       0.02    0
MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880501        19880531        6.9
      4.9  0.0123  0.0085  0.46    0.32    0.46    0.32    0.25    0.17    0.03    0.02    0.044
     0.03  0.01    0.01    0.02    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880601        19880630        14.3
        .  .       .       0.28    0.4     0.27    0.39    0.15    0.21    0.07    0.1     0.026
    0.037  .       .       0.02    0.03    0.01    0.01    .       .
MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880701        19880731        8.3
        .  .       .       .       .       .       .       .       .       .       .       .
        .  .       .       .       .       .       .       .       .
MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880801        19880831        2.9
      4.9  0.0127  0.0037  0.6     0.18    0.59    0.17    0.27    0.08    0.03    0.01    0.035
     0.01  0.04    0.01    0.03    0.01    0.01    0       0.02    0.01
MONTH      CAPM84152A  Goose Bay    53.29   60.388  19880901        19880930        8.8
        5  0.011   0.0097  0.47    0.42    0.46    0.41    0.21    0.19    0.07    0.06    0.037
    0.033  0.05    0.04    0.02    0.02    0.01    0.01    0.01    0.01
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19881101        19881130        9.9
      4.9  0.0119  0.0118  0.37    0.37    0.36    0.36    0.33    0.33    0.09    0.09    0.03
     0.03  0.05    0.05    0.01    0.01    0.01    0.01    0.01    0.01
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19881201        19881231        3.6
      4.7  0.0184  0.0067  .       .       .       .       .       .       .       .       0.011
    0.004  0.05    0.02    0.02    0.01    0.01    0       0.01    0
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890101        19890131        1.4
      4.8  0.0178  0.0025  0.23    0.03    0.18    0.03    0.86    0.12    0.47    0.07    0.04
    0.006  0.21    0.03    0.07    0.01    0.03    0       0.02    0
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890201        19890228        0.9
      4.9  0.0121  0.0011  0.19    0.02    0.18    0.02    0.57    0.05    0.08    0.01    0.023
    0.002  0.02    0       0.02    0       0.01    0       0.01    0
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890301        19890331        4.1
        5  0.0098  0.004   0.4     0.16    0.31    0.13    0.1     0.04    0.69    0.28    0.035
    0.014  0.4     0.16    0.04    0.02    0.05    0.02    0.01    0
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890401        19890430        9.9
      4.8  0.0158  0.0156  0.66    0.65    0.63    0.62    0.29    0.29    0.19    0.2     0.063
    0.062  0.12    0.12    0.03    0.03    0.01    0.01    0.01    0.01
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890501        19890531        10.5
      5.1  0.0089  0.0093  0.42    0.44    0.41    0.43    0.34    0.36    0.07    0.07    0.101
    0.106  0.04    0.04    0.04    0.04    0.01    0.01    0.01    0.01
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890601        19890630        7.6
      4.8  0.0165  0.0126  0.5     0.38    0.49    0.37    0.35    0.27    0.07    0.05    0.06
    0.046  0.03    0.02    0.03    0.02    0.01    0.01    0.03    0.02
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890701        19890731        18.8
      5.1  0.0083  0.0156  0.28    0.53    0.26    0.49    0.24    0.45    0.13    0.24    0.073
    0.137  .       .       .       .       .       .       .       .
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890801        19890831        20.2
      5.2  0.0066  0.0133  0.21    0.42    0.18    0.36    0.14    0.28    0.19    0.38    0.036
    0.073  0.13    0.26    0.01    0.02    0.01    0.02    0.05    0.1
MONTH      CAPM84152B  Goose Bay B  53.29   60.388  19890901        19890930        12.7
      4.9  0.0121  0.0153  0.6     0.76    0.53    0.67    0.26    0.33    0.47    0.6     0.062
    0.079  0.27    0.34    0.02    0.03    0.03    0.04    0.02    0.03
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MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19891001          19891031          7.4
         4.9      0.0118  0.0088  0.55    0.41    0.54    0.4     0.29      0.22    0.09      0.07    0.051
         0.038    0.05    0.04    0.03    0.02    0.01    0.01    0.01      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19891101          19891130          12.4
         4.9      0.0128  0.0159  0.36    0.45    0.35    0.43    0.45      0.56    0.13      0.16    0.028
         0.035    0.08    0.1     0.01    0.01    0.01    0.01    0.01      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19891201          19891231          11.5
         5.2      0.0058  0.0067  0.23    0.26    0.18    0.21    0.25      0.29    0.38      0.44    0.03
         0.034    0.25    0.29    0.02    0.02    0.02    0.02    0.02      0.02
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900101          19900131          5.7
         4.9      0.0116  0.0066  0.23    0.13    0.21    0.12    0.53      0.3     0.18      0.1     0.041
         0.023    0.1     0.06    0.02    0.01    0.02    0.01    0.01      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900201          19900228          3.2
         5.1      0.0089  0.0028  0.17    0.05    0.16    0.05    0.39      0.12    0.09      0.03    0.056
         0.018    .       .       .       .       .       .       .         .
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900301          19900331          1
         4.8      0.0156  0.0016  0.9     0.09    0.89    0.09    0.46      0.05    0.08      0.01    0.115
         0.012    0.03    0       .       .       .       .       0.01      0
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900401          19900430          5.6
         5.1      0.0089  0.005   0.43    0.24    0.42    0.24    0.21      0.12    0.07      0.04    0.05
         0.029    0.04    0.02    0.03    0.02    0.01    0.01    0.02      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900501          19900531          5.9
         5        0.0097  0.0057  0.42    0.25    0.41    0.24    0.13      0.08    0.07      0.04    0.05
         0.03     0.06    0.04    0.02    0.01    0.01    0.01    0.02      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900601          19900630          9.5
         4.7      0.0189  0.0179  1.25    1.18    1.24    1.17    0.42      0.4     0.05      0.05    0.19
         0.18     0.03    0.03    0.06    0.06    0.02    0.02    0.17      0.16
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900701          19900731          7.9
         4.9      0.0134  0.0106  0.48    0.38    0.48    0.38    0.27      0.21    0.06      0.05    0.049
         0.039    0.04    0.03    0.04    0.03    0.01    0.01    0.03      0.02
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900801          19900831          14.3
         4.8      0.0158  0.0226  0.47    0.67    0.46    0.66    0.32      0.46    0.07      0.1     0.048
         0.069    0.05    0.07    0.04    0.06    0.01    0.01    0.01      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19900901          19900930          8.8
         4.5      0.03    0.0265  1.27    1.12    1.24    1.09    0.55      0.49    0.24      0.21    0.128
         0.113    0.1     0.09    0.03    0.03    0.02    0.02    0.02      0.02
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19901001          19901031          6.3
         4.6      0.0227  0.0153  0.94    0.63    0.9     0.61    0.57      0.38    0.3       0.2     0.084
         0.057    0.15    0.09    0.04    0.03    0.02    0.01    0.01      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19901101          19901130          9.5
         5.1      0.0082  0.0077  0.36    0.34    0.34    0.32    0.21      0.2     0.09      0.09    0.024
         0.023    0.04    0.04    0.01    0.01    0.01    0.01    0.02      0.02
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19901201          19901231          7.9
         5.1      0.0072  0.0057  0.12    0.1     0.11    0.09    0.33      0.26    0.11      0.09    0.01
         0.008    0.04    0.03    0.02    0.02    0.01    0.01    0.01      0.01
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19910101          19910131          2.5
         4.7      0.0185  0.0046  0.26    0.07    0.24    0.06    1.22      0.31    0.13      0.03    0.023
         0.006    0.02    0.01    0.03    0.01    0.01    0       0.01      0
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19910201          19910228          3
         4.8      0.0161  0.0047  0.34    0.1     0.31    0.09    0.63      0.19    0.31      0.09    0.04
         0.012    0.15    0.04    0.03    0.01    0.02    0.01    0.01      0
MONTH             CAPM84152B      Goose Bay B     53.29   60.388  19910301          19910331          4.9
         4.9      0.0132  0.0065  0.45    0.22    0.42    0.21    0.47      0.23    0.21      0.1     0.037
         0.018    0.12    0.06    0.04    0.02    0.02    0.01    0.01      0
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MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19910401        19910430     1.8
      5.2   0.007  0.0014  0.26  0.05  0.22  0.04  0.31  0.06  0.29  0.05  0.022
      0.004 0.02   0       0.03  0.01  0.01  0     0.01  0
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19910501        19910531     3.1
      5.2   0.0057 0.0018  0.16  0.05  0.16  0.05  0.12  0.04  0.04  0.01  0.017
      0.005 0.02   0.01    0.04  0.01  0.01  0     0.01  0
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19910601        19910630     17.9
      5.3   0.0049 0.0088  0.22  0.39  0.22  0.39  0.19  0.34  0.05  0.09  0.043
      0.077 0.02   0.04    0.03  0.05  0.01  0.02  0.02  0.04
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19910701        19910731     8.2
      5.1   0.0073 0.0059  0.2   0.16  0.19  0.15  0.2   0.16  0.08  0.07  0.028
      0.023 0.04   0.03    0.02  0.02  0.01  0.01  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19910801        19910831     9.6
      4.6   0.0251 0.024   1.22  1.17  1.21  1.16  0.37  0.35  0.05  0.05  0.123
      0.117 0.03   0.03    0.03  0.03  0.01  0.01  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19910901        19910930     5.9
      5     0.0109 0.0064  0.4   0.23  0.39  0.23  0.2   0.12  0.14  0.08  0.021
      0.012 0.09   0.05    0.02  0.01  0.01  0.01  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19911001        19911031     11.7
      4.8   0.0175 0.0204  0.87  1.12  0.81  1.04  0.43  0.5   0.42  0.49  0.099
      0.127 0.23   0.27    0.03  0.04  0.03  0.04  0.02  0.03
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19911101        19911130     6
      5     0.011  0.0065  0.29  0.17  0.24  0.14  0.33  0.2   0.33  0.2   0.033
      0.02  0.18   0.11    0.02  0.01  0.03  0.02  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19911201        19911231     4.2
      5.1   0.0072 0.003   0.15  0.06  0.14  0.06  0.27  0.11  0.08  0.03  0.008
      0.003 0.03   0.01    0.02  0.01  0.01  0     0.01  0
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920101        19920131     3.6
      5.1   0.0086 0.0031  0.17  0.06  0.16  0.06  0.29  0.11  0.09  0.03  0.01
      0.004 0.03   0.01    0.01  0     0.01  0     0.01  0
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920201        19920229     2
      4.9   0.0136 0.0027  0.36  0.07  0.3   0.06  0.55  0.11  0.45  0.09  0.026
      0.005 0.22   0.04    0.03  0.01  0.03  0.01  0.02  0
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920301        19920331     9.5
      4.9   0.0115 0.0109  0.4   0.38  0.38  0.36  0.22  0.21  0.16  0.15  0.037
      0.035 0.08   0.08    0.04  0.04  0.01  0.01  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920401        19920430     7.9
      4.8   0.0146 0.0115  0.48  0.38  0.44  0.35  0.41  0.32  0.3   0.24  0.052
      0.041 0.16   0.13    0.05  0.04  0.02  0.02  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920501        19920531     9.4
      4.5   0.0291 0.0274  1.66  1.56  1.65  1.55  0.48  0.45  0.09  0.08  0.283
      0.267 0.05   0.05    0.06  0.06  0.02  0.02  0.01  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920601        19920630     6.3
      5     0.0092 0.0064  0.22  0.14  0.21  0.15  0.17  0.12  0.08  0.06  0.014
      0.01  0.04   0.03    0.01  0.01  0.01  0.01  0.02  0.01
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920701        19920731     12.6
      5.1   0.0074 0.0093  0.21  0.26  0.2   0.25  0.16  0.2   0.07  0.09  0.024
      0.03  0.04   0.05    0.03  0.04  0.01  0.01  0.02  0.03
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920801        19920831     12.6
      4.5   0.0287 0.0363  1.3   1.64  1.26  1.59  0.64  0.81  0.3   0.38  0.105
      0.133 0.14   0.18    0.03  0.04  0.02  0.03  0.02  0.03
MONTH       CAPM84152B  Goose Bay B  53.29  60.388  19920901        19920930     7
      4.7   0.0187 0.0131  0.72  0.5   0.7   0.49  0.4   0.28  0.15  0.11  0.078
      0.055 0.07   0.05    0.03  0.02  0.02  0.01  0.01  0.01
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MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19921001         19921031        7.5
     4.8  0.0165  0.0124  0.6   0.45   0.59   0.44    0.25   0.19   0.12    0.1     0.052
   0.039  0.06    0.05    0.02  0.02   0.01   0.01    0.01   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19921101         19921130        1.9
     4.9  0.0133  0.0031  0.37  0.09   0.36   0.08    0.3    0.07   0.09    0.02    0.018
   0.004  0.02    0       0.02  0      0.01   0       0.01   0
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19921201         19921231        3.8
     4.9  0.0136  0.0052  0.2   0.08   0.19   0.07    0.61   0.23   0.13    0.05    0.025
    0.01  0.07    0.03    0.03  0.01   0.01   0       0.01   0
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930101         19930131        1.4
     4.8  0.0162  0.0028  0.23  0.04   0.22   0.04    0.66   0.11   0.11    0.02    0.011
   0.002  0.05    0.01    0.02  0      0.01   0       0.01   0
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930201         19930228        7.2
       5  0.011   0.0079  0.29  0.21   0.28   0.2     0.24   0.17   0.08    0.06    0.01
   0.007  0.03    0.02    0.02  0.01   0.01   0.01    0.01   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930301         19930331        6.4
     5.1  0.0086  0.006   0.17  0.12   0.15   0.1     0.2    0.14   0.16    0.1     0.015
    0.01  0.07    0.04    0.04  0.03   0.01   0.01    0.02   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930401         19930430        7.4
       5  0.0091  0.0082  0.3   0.27   0.28   0.25    0.23   0.21   0.1     0.09    0.037
   0.034  0.09    0.08    0.08  0.07   0.01   0.01    0.02   0.02
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930501         19930531        10.1
     4.9  0.014   0.0141  0.47  0.47   0.47   0.47    0.32   0.32   0.05    0.05    0.092
   0.093  0.02    0.02    0.04  0.04   0.01   0.01    0.01   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930601         19930630        5.3
     4.7  0.0195  0.0103  0.5   0.27   0.49   0.26    0.36   0.19   0.1     0.05    0.082
   0.043  0.05    0.03    0.04  0.02   0.02   0.01    0.03   0.02
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930701         19930731        7.3
     4.9  0.0118  0.0087  0.28  0.21   0.26   0.19    0.28   0.21   0.16    0.12    0.036
   0.026  0.07    0.05    0.01  0.01   0.01   0.01    0.02   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930801         19930831        6.2
     4.8  0.0173  0.0107  0.36  0.22   0.36   0.22    0.34   0.21   0.04    0.02    0.063
   0.039  0.01    0.01    0.02  0.01   0.01   0.01    0.01   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19930901         19930930        6.5
     4.9  0.0114  0.0075  0.3   0.22   0.29   0.21    0.25   0.16   0.06    0.04    0.041
   0.027  0.03    0.02    0.03  0.02   0.01   0.01    0.03   0.02
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19931001         19931031        16.3
     4.9  0.0127  0.0208  0.33  0.54   0.32   0.52    0.38   0.62   0.09    0.15    0.048
   0.078  0.04    0.07    0.01  0.02   0.01   0.02    0.02   0.03
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19931101         19931130        2.7
     4.8  0.0151  0.0043  0.21  0.06   0.21   0.06    0.61   0.18   0.03    0.01    0.026
   0.007  0.02    0.01    0.02  0.01   0.01   0       0.01   0
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19931201         19931231        3.3
       5  0.0105  0.0035  0.17  0.06   0.15   0.05    0.28   0.09   0.2     0.07    0.005
   0.002  0.08    0.03    0.02  0.01   0.01   0       0.01   0
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19940101         19940131        8.4
     4.9  0.0115  0.0097  0.1   0.08   0.07   0.06    0.47   0.39   0.24    0.2     0.01
   0.008  0.12    0.1     0.02  0.02   0.02   0.02    0.01   0.01
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19940201         19940228        3.7
       5  0.0106  0.0039  0.16  0.06   0.14   0.05    0.38   0.14   0.12    0.04    0.019
   0.007  0.06    0.02    0.01  0      0.01   0       0.01   0
MONTH     CAPM84152B  Goose Bay B   53.29  60.388  19940301         19940331        5.3
     4.9  0.0129  0.0069  0.38  0.2    0.34   0.18    0.23   0.12   0.36    0.19    0.03
   0.016  0.19    0.1     0.02  0.01   0.03   0.02    0.01   0.01
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MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19940401		19940430		5.4
4.8	0.0144	0.0083	0.44	0.25	0.43	0.25	0.4	0.22	0.06	0.03	0.065
0.038	0.04	0.02	0.04	0.02	0.01	0.01	0.01	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19940501		19940531		5.7
5	0.0092	0.0052	0.23	0.13	0.23	0.13	0.2	0.11	0.05	0.03	0.04
0.023	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19940601		19940630		6.7
4.9	0.0139	0.0093	0.46	0.31	0.45	0.3	0.4	0.27	0.04	0.03	0.09
0.06	0.01	0.01	0.04	0.03	0.01	0.01	0.02	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19940701		19940731		8
4.7	0.0186	0.0149	0.46	0.37	0.46	0.37	0.34	0.27	0.03	0.02	0.085
0.068	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.02			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19940801		19940831		15.7
4.6	0.0268	0.042	0.93	1.46	0.92	1.44	0.44	0.69	0.04	0.06	0.198
0.31	0.02	0.03	0.02	0.03	0.01	0.02	0.03	0.05			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19940901		19940930		6.9
5	0.0091	0.0063	0.26	0.18	0.19	0.13	0.15	0.1	0.55	0.38	0.047
0.032	0.3	0.21	0.02	0.01	0.04	0.03	0.02	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19941001		19941031		6.2
4.7	0.0194	0.012	0.88	0.54	0.86	0.53	0.45	0.28	0.2	0.12	0.136
0.084	0.08	0.05	0.07	0.04	0.03	0.02	0.02	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19941101		19941130		12.6
5.2	0.0069	0.0087	0.18	0.23	0.13	0.16	0.15	0.19	0.41	0.56	0.015
0.019	0.21	0.29	0.02	0.03	0.03	0.04	0.01	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19941201		19941231		6.5
4.7	0.0196	0.0126	0.22	0.14	0.2	0.13	0.93	0.6	0.16	0.1	0.036
0.023	0.07	0.05	0.02	0.01	0.01	0.01	0.01	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950101		19950131		4.2
5.4	0.0044	0.0019	0.06	0.03	0.04	0.02	0.18	0.08	0.1	0.04	0.01
0.004	0.06	0.03	0.02	0.01	0.01	0	0.01	0			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950201		19950228		3.3
4.8	0.0154	0.0051	0.3	0.1	0.28	0.09	0.54	0.18	0.1	0.03	0.031
0.01	0.04	0.01	0.02	0.01	0.01	0	0.01	0			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950301		19950331		11
5	0.0106	0.0117	0.25	0.28	0.21	0.23	0.36	0.4	0.33	0.36	0.023
0.025	0.17	0.19	0.03	0.03	0.02	0.02	0.02	0.02			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950401		19950430		10
5.1	0.0078	0.0078	0.26	0.26	0.23	0.23	0.17	0.17	0.17	0.17	0.032
0.032	0.09	0.09	0.02	0.02	0.01	0.01	0.01	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950501		19950531		2.8
4.8	0.0177	0.0049	0.69	0.19	0.66	0.18	0.53	0.15	0.2	0.06	0.134
0.037	0.1	0.03	0.06	0.02	0.02	0.01	0.03	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950601		19950630		6.1
4.9	0.0126	0.0077	0.35	0.21	0.35	0.21	0.31	0.19	0.04	0.02	0.104
0.064	0.02	0.01	0.04	0.02	0.01	0.01	0.09	0.06			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950701		19950731		12.8
4.8	0.0177	0.0227	0.4	0.51	0.4	0.51	0.32	0.41	0.04	0.05	0.092
0.118	0.02	0.03	0.02	0.03	0.01	0.01	0.01	0.01			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950801		19950831		7.6
4.8	0.0175	0.0134	0.54	0.41	0.52	0.4	0.37	0.28	0.2	0.15	0.158
0.121	0.11	0.08	0.1	0.08	0.02	0.02	0.03	0.02			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19950901		19950930		9.5
4.8	0.0165	0.0157	0.54	0.51	0.53	0.51	0.3	0.29	0.05	0.05	0.066
0.063	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01			

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MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19951001            19951031            9.2
          4.7       0.0195    0.018     0.71      0.65      0.69      0.64      0.6       0.55      0.12      0.11      0.098
          0.09      0.06      0.06      0.05      0.05      0.01      0.01      0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19951101            19951130            5.5
          5         0.0093    0.0051    0.25      0.14      0.24      0.13      0.26      0.14      0.06      0.03      0.017
          0.009     0.03      0.02      0.01      0.01      0         0         0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19951201            19951231            4.5
          5.2       0.0061    0.0027    0.21      0.09      0.12      0.05      0.15      0.07      0.69      0.31      0.014
          0.006     0.35      0.16      0.04      0.02      0.05      0.02      0.02      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960101            19960131            5.5
          5         0.01      0.0055    0.28      0.15      0.25      0.14      0.34      0.19      0.19      0.1       0.019
          0.01      0.09      0.05      0.03      0.02      0.01      0.01      0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960201            19960229            7.7
          5.3       0.0056    0.0043    0.17      0.13      0.15      0.12      0.14      0.11      0.17      0.13      0.019
          0.015     0.07      0.05      0.01      0.01      0.01      0.01      0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960301            19960331            9.4
          4.8       0.0176    0.0166    0.53      0.5       0.5       0.47      0.62      0.58      0.18      0.17      0.074
          0.07      0.07      0.07      0.03      0.03      0.01      0.01      0.02      0.02
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960401            19960430            4.9
          5         0.0104    0.0051    0.33      0.16      0.3       0.15      0.4       0.2       0.2       0.1       0.07
          0.034     0.1       0.05      0.03      0.01      0.02      0.01      0.02      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960501            19960531            8.4
          5         0.0095    0.0079    0.42      0.35      0.41      0.34      0.27      0.23      0.09      0.08      0.076
          0.064     0.05      0.04      0.03      0.03      0.01      0.01      0.03      0.03
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960601            19960630            11.9
          4.8       0.0176    0.0209    0.52      0.62      0.51      0.6       0.43      0.51      0.05      0.06      0.114
          0.135     0.03      0.04      0.02      0.02      0.01      0.01      0.04      0.05
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960701            19960731            18.5
          4.9       0.0127    0.0235    0.37      0.69      0.35      0.65      0.26      0.48      0.15      0.28      0.056
          0.104     0.08      0.15      0.01      0.02      0.01      0.02      0.01      0.02
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960801            19960831            8.7
          5         0.0101    0.0088    0.32      0.28      0.31      0.27      0.25      0.22      0.08      0.07      0.06
          0.052     0.05      0.04      0.03      0.03      0.01      0.01      0.02      0.02
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19960901            19960930            11.5
          5.2       0.0061    0.007     0.26      0.3       0.15      0.17      0.07      0.08      0.78      0.89      0.024
          0.028     0.45      0.52      0.03      0.03      0.06      0.07      0.02      0.02
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19961001            19961031            10.5
          5.2       0.007     0.009     0.2       0.26      0.17      0.22      0.12      0.15      0.21      0.27      0.021
          0.027     0.12      0.15      0.01      0.01      0.02      0.03      0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19961101            19961130            7.4
          5.2       0.0065    0.0048    0.31      0.23      0.15      0.11      0.2       0.15      1.1       0.81      0.024
          0.018     0.64      0.47      0.04      0.03      0.08      0.06      0.02      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19961201            19961231            8.1
          4.8       0.0147    0.0118    0.17      0.14      0.14      0.11      0.42      0.34      0.14      0.11      0.008
          0.006     0.09      0.07      0.01      0.01      0.01      0.01      0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19970101            19970131            6.6
          5.1       0.0079    0.0052    0.15      0.1       0.14      0.09      0.25      0.17      0.1       0.07      0.011
          0.007     0.06      0.04      0.01      0.01      0.01      0.01      0.01      0.01
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19970201            19970228            1.1
          5.1       0.0079    0.0009    0.12      0.01      0.11      0.01      0.3       0.03      0.04      0         0.024
          0.003     0.01      0         0.02      0         0         0         0.01      0
MONTH               CAPM84152B          Goose Bay B         53.29     60.388    19970301            19970331            4
          5.2       0.0062    0.0025    0.21      0.08      0.19      0.08      0.15      0.06      0.15      0.06      0.017
          0.007     0.09      0.04      0.01      0         0.01      0         0.01      0
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MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19970401                19970430                10.8
            5.1         0.0079      0.0086      0.27        0.29        0.24        0.25        0.16        0.17        0.15        0.17        0.043
            0.048       0.07        0.08        0.01        0.01        0.01        0.01        0.01        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19970501                19970531                13.1
            4.9         0.014       0.0207      0.5         0.74        0.49        0.73        0.34        0.5         0.09        0.13        0.084
            0.124       0.06        0.08        0.01        0.01        0.01        0.01        0.02        0.03
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19970601                19970630                7.7
            4.8         0.0156      0.012       0.54        0.41        0.53        0.41        0.39        0.3         0.08        0.06        0.091
            0.07        0.04        0.03        0.03        0.02        0.01        0.01        0.03        0.02
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19970701                19970731                18.7
            4.9         0.014       0.0262      0.4         0.75        0.39        0.73        0.28        0.52        0.04        0.07        0.064
            0.12        0.02        0.04        0.01        0.02        0           0           0.01        0.02
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19970801                19970831                11.4
            5           0.0113      0.0129      0.34        0.39        0.3         0.34        0.15        0.17        0.23        0.26        0.041
            0.047       0.14        0.16        0.01        0.01        0.02        0.02        0.01        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19970901                19970930                15
            5.1         0.0087      0.0131      0.25        0.38        0.24        0.36        0.14        0.21        0.03        0.05        0.048
            0.072       0.02        0.03        0.01        0.02        0.01        0.02        0.01        0.02
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19971001                19971031                9.4
            4.9         0.0119      0.0111      0.6         0.56        0.47        0.44        0.26        0.24        0.91        0.85        0.053
            0.05        0.52        0.49        0.04        0.04        0.06        0.06        0.02        0.02
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19971101                19971130                8.6
            5.2         0.0057      0.0053      0.1         0.09        0.08        0.07        0.21        0.19        0.16        0.14        0.023
            0.021       0.1         0.09        0.02        0.02        0.01        0.01        0.01        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19971201                19971231                5.4
            5.1         0.0086      0.0046      0.19        0.11        0.13        0.07        0.35        0.19        0.41        0.23        0.032
            0.018       0.22        0.13        0.03        0.02        0.03        0.02        0.01        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980101                19980131                10.8
            5.1         0.0073      0.0079      0.07        0.08        0.07        0.08        0.36        0.39        0.05        0.05        0.024
            0.026       0.02        0.02        0.01        0.01        0           0           0           0
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980201                19980228                10.9
            5.2         0.0057      0.0062      0.25        0.27        0.22        0.24        0.26        0.28        0.23        0.25        0.053
            0.058       0.14        0.15        .           .           .           .           0.03        0.03
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980301                19980331                7.7
            5.2         0.0058      0.0045      0.2         0.15        0.15        0.12        0.16        0.12        0.39        0.3         0.025
            0.019       0.23        0.18        0.02        0.02        0.03        0.02        0.02        0.02
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980401                19980430                7.7
            5.3         0.0055      0.0042      0.16        0.12        0.15        0.12        0.16        0.12        0.09        0.07        0.024
            0.019       0.04        0.03        0.04        0.03        0.01        0.01        0.01        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980501                19980531                10.7
            5           0.0107      0.0114      0.3         0.32        0.3         0.32        0.27        0.29        0.04        0.04        0.071
            0.076       0.02        0.02        0.03        0.03        0.01        0.01        0.01        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980601                19980630                5
            5           0.0092      0.0046      0.29        0.15        0.27        0.14        0.25        0.13        0.13        0.07        0.04
            0.021       0.07        0.04        0.03        0.02        0.01        0.01        0.02        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980701                19980731                7.6
            4.8         0.0156      0.0118      0.41        0.31        0.4         0.3         0.37        0.28        0.06        0.05        0.07
            0.053       0.03        0.02        0.03        0.02        0.01        0.01        0.02        0.02
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980801                19980831                6
            4.8         0.0157      0.0094      0.35        0.21        0.34        0.2         0.25        0.15        0.09        0.05        0.075
            0.045       0.04        0.02        0.03        0.02        0.01        0.01        0.02        0.01
MONTH                   CAPM84152B              Goose Bay B             53.29       60.388      19980901                19980930                14.4
            5.1         0.0077      0.0111      0.23        0.33        0.19        0.27        0.16        0.23        0.28        0.4         0.029
            0.042       0.15        0.22        0.01        0.01        0.02        0.03        0.02        0.03
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MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19981001		19981031		9.8
5.1	0.0085	0.0084	0.34	0.33	0.29	0.29	0.2	0.2	0.35	0.34	0.03
0.029	0.19	0.19	0.03	0.03	0.03	0.03	0.02	0.02			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19981101		19981130		10
5.2	0.0059	0.0059	0.18	0.18	0.12	0.12	0.21	0.21	0.4	0.4	0.025
0.025	0.22	0.22	0.02	0.02	0.03	0.03	0.02	0.02			
MONTH	CAPM84152B		Goose Bay B		53.29	60.388	19981201		19981231		7.1
5.1	0.0074	0.0052	0.16	0.11	0.16	0.11	0.26	0.18	0.04	0.03	0.025
0.018	0.02	0.01	0.01	0.01	0	0	0.01	0.01			

SUMFR	SITEID	SITENAME		LAT	LON	STARTPER		ENDPER		TOTPRCP		pH
	HPLCN	HPLDP	SO4CN	SO4DP	XSO4CN		XSO4DP		NO3CN	NO3DP	CLDN	CLDP
	NH4CN	NH4DP	NACN	NADP	CACN	CADP	MGCN	MGDP	KCN	KDP		
QUART	CAPM84152A		Goose Bay		53.29	60.388	19831001		19831231		39.8	4.9
	0.0121	0.0482	0.48	1.91	0.41	1.63	0.26	1.04	.	.	.	.
	.	.	0.12	0.48	0.03	0.12	0.04	0.16				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19840101		19840331		17.2	4.6
	0.0265	0.0455	1.18	2.03	1.1	1.89	1.04	1.79	.	.	.	.
	.	.	0.23	0.4	0.04	0.07	0.03	0.05				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19840401		19840630		25.7	5.1
	0.009	0.0231	0.66	1.7	0.61	1.57	0.22	0.57	.	.	.	.
	.	.	.	.	0.02	0.05	0.04	0.1				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19840701		19840930		24.3	4.8
	0.0148	0.036	0.91	2.21	0.86	2.09	0.43	1.05	.	.	.	.
	.	.	0.1	0.24	0.02	0.05	0.02	0.05				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19841001		19841231		26.7	4.9
	0.014	0.0373	0.76	2.03	0.73	1.95	0.36	0.96	.	.	0.032	0.085
	.	.	0.04	0.11	0.02	0.05	0.03	0.08				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19850101		19850331		21.5	5.1
	0.0087	0.0187	0.34	0.73	0.31	0.66	0.17	0.36	0.19	0.41	0.037	0.079
	0.1	0.21	0.04	0.09	0.01	0.02	0.03	0.06				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19850401		19850630		20.5	4.8
	0.0159	0.0325	0.58	1.19	0.57	1.17	0.36	0.74	0.08	0.16	0.049	0.1
	0.03	0.06	0.04	0.08	0.01	0.02	0.01	0.02				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19850701		19850930		45.4	5
	0.0107	0.0486	0.34	1.54	0.34	1.54	0.21	0.95	0.08	0.36	0.03	0.136
	0.02	0.09	0.01	0.05	0.01	0.05	0.01	0.05				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19851001		19851231		13.2	4.9
	0.0128	0.0169	0.39	0.51	0.37	0.49	0.34	0.45	0.15	0.2	0.038	0.05
	0.06	0.08	0.02	0.03	0.01	0.01	0.01	0.01				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19860101		19860331		14.8	4.8
	0.0164	0.0243	0.6	0.89	0.58	0.86	0.52	0.77	0.13	0.19	0.085	0.126
	0.07	0.1	0.05	0.07	0.01	0.01	0.01	0.01				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19860401		19860630		22.2	4.8
	0.0168	0.0373	0.52	1.15	0.51	1.13	0.24	0.53	0.08	0.18	0.066	0.146
	0.04	0.09	0.03	0.07	0.01	0.02	0.01	0.02				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19860701		19860930		33.2	4.9
	0.0136	0.0452	0.35	1.16	0.34	1.13	0.15	0.5	0.08	0.27	0.036	0.12
	0.04	0.13	0.01	0.03	0.01	0.03	0.01	0.03				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19861001		19861231		19.8	4.9
	0.0118	0.0234	0.3	0.59	0.28	0.55	0.3	0.59	0.11	0.22	0.022	0.044
	0.06	0.12	0.01	0.02	0.01	0.02	0.01	0.02				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19870101		19870331		19.2	4.9
	0.0121	0.0232	0.46	0.88	0.4	0.77	0.16	0.31	0.48	0.92	0.042	0.081
	0.28	0.54	0.02	0.04	0.03	0.06	0.02	0.04				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19870401		19870630		16.2	4.9
	0.0118	0.0192	0.61	0.99	0.6	0.97	0.28	0.45	0.05	0.08	0.061	0.099
	0.04	0.07	0.03	0.05	0.01	0.02	0.03	0.05				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19870701		19870930		30.4	4.8
	0.0143	0.0435	0.63	1.91	0.62	1.88	0.23	0.7	0.05	0.15	0.073	0.222
	0.03	0.09	0.02	0.06	0.01	0.03	0.01	0.03				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19871001		19871231		18.2	4.9
	0.0142	0.0259	0.47	0.86	0.44	0.8	0.36	0.66	0.23	0.42	0.042	0.077
	0.12	0.22	0.02	0.04	0.02	0.04	0.01	0.02				

QUART	CAPM84152A		Goose Bay		53.29	60.388	19880101		19880331		21.9	4.8
	0.0147	0.0322	0.36	0.79	0.35	0.77	0.54	1.18	0.14	0.31	0.039	0.085
	0.06	0.13	0.02	0.04	0.01	0.02	0.01	0.02				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19880401		19880630		22.1	.
	.	.	0.35	0.77	0.34	0.75	0.18	0.4	0.07	0.15	0.034	0.075
	.	.	0.02	0.04	0.01	0.02	.	.				
QUART	CAPM84152A		Goose Bay		53.29	60.388	19880701		19880930		20	4.9
	0.0131	0.0262	0.54	1.08	0.53	1.06	0.25	0.5	0.07	0.14	0.044	0.088
	0.04	0.08	0.03	0.06	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19881001		19881231		19.5	4.8
	0.0148	0.0289	0.46	0.9	0.44	0.86	0.38	0.74	0.21	0.43	0.03	0.059
	0.11	0.23	0.01	0.02	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19890101		19890331		6.5	4.9
	0.012	0.0078	0.33	0.21	0.25	0.16	0.36	0.23	0.54	0.35	0.034	0.022
	0.3	0.19	0.04	0.03	0.03	0.02	0.01	0.01				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19890401		19890630		28	4.9
	0.0136	0.0381	0.53	1.48	0.52	1.45	0.33	0.92	0.11	0.31	0.075	0.21
	0.07	0.2	0.03	0.08	0.01	0.03	0.01	0.03				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19890701		19890930		51.6	5.1
	0.0086	0.0444	0.33	1.7	0.3	1.55	0.21	1.08	0.24	1.24	0.056	0.289
	0.15	0.77	0.02	0.1	0.02	0.1	0.03	0.15				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19891001		19891231		31.3	5
	0.0101	0.0316	0.36	1.13	0.33	1.03	0.34	1.06	0.21	0.66	0.034	0.106
	0.13	0.41	0.02	0.06	0.01	0.03	0.01	0.03				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19900101		19900331		9.9	5
	0.011	0.0108	0.27	0.27	0.25	0.25	0.48	0.47	0.14	0.14	0.053	0.052
	0.08	0.08	0.02	0.02	0.01	0.01	0.01	0.01				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19900401		19900630		21	4.9
	0.0136	0.0285	0.8	1.68	0.79	1.66	0.28	0.59	0.06	0.13	0.111	0.233
	0.04	0.08	0.04	0.08	0.01	0.02	0.09	0.19				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19900701		19900930		31	4.7
	0.0192	0.0596	0.71	2.2	0.69	2.14	0.38	1.18	0.12	0.37	0.071	0.22
	0.06	0.19	0.04	0.12	0.01	0.03	0.02	0.06				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19901001		19901231		23.7	4.9
	0.0119	0.0289	0.44	1.07	0.42	1.02	0.35	0.85	0.15	0.36	0.036	0.088
	0.07	0.17	0.02	0.05	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19910101		19910331		10.3	4.8
	0.0152	0.0157	0.38	0.39	0.35	0.36	0.68	0.7	0.23	0.24	0.035	0.036
	0.11	0.11	0.03	0.03	0.02	0.02	0.01	0.01				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19910401		19910630		22.8	5.3
	0.0051	0.0116	0.22	0.5	0.21	0.48	0.19	0.43	0.07	0.16	0.038	0.087
	0.02	0.05	0.03	0.07	0.01	0.02	0.02	0.05				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19910701		19910930		23.6	4.8
	0.0154	0.0363	0.66	1.55	0.65	1.53	0.27	0.64	0.08	0.19	0.065	0.153
	0.05	0.12	0.02	0.05	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19911001		19911231		21.8	4.9
	0.0138	0.0301	0.58	1.26	0.54	1.27	0.37	0.81	0.33	0.72	0.066	0.155
	0.18	0.39	0.03	0.07	0.03	0.07	0.02	0.04				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19920101		19920331		15.1	5
	0.0111	0.0167	0.33	0.5	0.31	0.47	0.28	0.42	0.19	0.29	0.028	0.042
	0.09	0.14	0.03	0.05	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19920401		19920630		23.7	4.7
	0.0189	0.0447	0.88	2.08	0.86	2.03	0.37	0.88	0.16	0.38	0.134	0.317
	0.08	0.19	0.04	0.09	0.02	0.05	0.02	0.05				

QUART	CAPM84152B		Goose Bay B		53.29	60.388	19920701		19920930		32.2	4.7
	0.0182	0.0586	0.75	2.42	0.73	2.35	0.4	1.29	0.18	0.58	0.068	0.219
	0.08	0.26	0.03	0.1	0.01	0.03	0.02	0.06				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19921001		19921231		13.2	4.8
	0.0154	0.0204	0.47	0.62	0.45	0.6	0.35	0.46	0.12	0.16	0.04	0.053
	0.06	0.08	0.02	0.03	0.01	0.01	0.01	0.01				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19930101		19930331		15	5
	0.0105	0.0167	0.23	0.37	0.22	0.35	0.27	0.43	0.11	0.16	0.012	0.019
	0.05	0.07	0.03	0.05	0.01	0.01	0.01	0.01				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19930401		19930630		22.8	4.9
	0.0137	0.0312	0.42	0.96	0.41	0.93	0.31	0.71	0.08	0.18	0.071	0.162
	0.05	0.11	0.05	0.11	0.01	0.02	0.02	0.05				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19930701		19930930		20.1	4.9
	0.0133	0.0267	0.31	0.62	0.3	0.6	0.29	0.58	0.09	0.18	0.045	0.09
	0.04	0.08	0.02	0.04	0.01	0.02	0.02	0.04				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19931001		19931231		22.4	4.9
	0.0126	0.0282	0.29	0.65	0.28	0.63	0.39	0.87	0.1	0.22	0.039	0.087
	0.04	0.09	0.01	0.02	0.01	0.02	0.02	0.04				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19940101		19940331		17.4	4.9
	0.0117	0.0204	0.2	0.35	0.17	0.3	0.38	0.66	0.26	0.45	0.018	0.031
	0.13	0.23	0.02	0.03	0.02	0.03	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19940401		19940630		17.8	4.9
	0.0124	0.0221	0.37	0.66	0.37	0.66	0.34	0.61	0.05	0.09	0.065	0.116
	0.02	0.04	0.03	0.05	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19940701		19940930		30.6	4.7
	0.0206	0.063	0.66	2.02	0.64	1.96	0.35	1.07	0.15	0.46	0.134	0.41
	0.08	0.24	0.02	0.06	0.02	0.06	0.02	0.06				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19941001		19941231		25.2	4.9
	0.0132	0.0333	0.36	0.91	0.33	0.83	0.42	1.06	0.3	0.81	0.05	0.126
	0.14	0.38	0.03	0.08	0.02	0.05	0.01	0.03				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19950101		19950331		18.5	5
	0.0099	0.0183	0.21	0.39	0.18	0.33	0.34	0.63	0.22	0.41	0.022	0.041
	0.12	0.22	0.03	0.06	0.02	0.04	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19950401		19950630		18.9	5
	0.0108	0.0204	0.35	0.66	0.33	0.62	0.27	0.51	0.13	0.25	0.07	0.132
	0.07	0.13	0.04	0.08	0.02	0.04	0.04	0.08				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19950701		19950930		30	4.8
	0.0173	0.0519	0.48	1.44	0.47	1.41	0.33	0.99	0.08	0.24	0.101	0.303
	0.05	0.15	0.04	0.12	0.01	0.03	0.02	0.06				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19951001		19951231		19.2	4.9
	0.0135	0.0259	0.46	0.88	0.43	0.83	0.4	0.77	0.24	0.46	0.056	0.107
	0.12	0.23	0.04	0.08	0.02	0.04	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19960101		19960331		22.6	4.9
	0.0116	0.0262	0.34	0.77	0.32	0.72	0.39	0.88	0.18	0.41	0.042	0.095
	0.08	0.18	0.02	0.05	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19960401		19960630		25.1	4.9
	0.0135	0.0339	0.45	1.13	0.44	1.1	0.37	0.93	0.09	0.23	0.093	0.233
	0.05	0.13	0.02	0.05	0.01	0.03	0.03	0.08				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19960701		19960930		38.7	5
	0.0101	0.0391	0.32	1.24	0.28	1.08	0.2	0.77	0.32	1.24	0.047	0.182
	0.18	0.7	0.02	0.08	0.03	0.12	0.02	0.08				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19961001		19961231		26	5
	0.0094	0.0244	0.22	0.63	0.16	0.46	0.24	0.62	0.45	1.17	0.018	0.052
	0.26	0.68	0.02	0.06	0.03	0.09	0.01	0.03				

QUART	CAPM84152B		Goose Bay B		53.29	60.388	19970101		19970331		11.7	5.1
	0.0073	0.0086	0.17	0.2	0.15	0.18	0.22	0.26	0.11	0.13	0.014	0.016
	0.07	0.08	0.01	0.01	0.01	0.01	0.01	0.01				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19970401		19970630		31.6	4.9
	0.0123	0.0389	0.43	1.36	0.42	1.33	0.3	1.01	0.1	0.32	0.071	0.225
	0.06	0.19	0.01	0.03	0.01	0.03	0.01	0.03				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19970701		19970930		45.2	4.9
	0.0116	0.0524	0.33	1.49	0.32	1.44	0.2	0.9	0.09	0.41	0.053	0.239
	0.05	0.23	0.01	0.05	0.01	0.05	0.01	0.05				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19971001		19971231		23.3	5.1
	0.0086	0.02	0.31	0.72	0.24	0.56	0.25	0.58	0.48	1.12	0.036	0.084
	0.28	0.65	0.03	0.07	0.04	0.1	0.02	0.05				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19980101		19980331		29.4	5.2
	0.0063	0.0185	0.18	0.53	0.14	0.41	0.27	0.79	0.21	0.62	0.035	0.103
	0.12	0.35	0.02	0.06	0.01	0.03	0.02	0.06				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19980401		19980630		23.4	5.1
	0.0087	0.0204	0.25	0.59	0.24	0.56	0.23	0.54	0.08	0.19	0.051	0.124
	0.04	0.09	0.04	0.1	0.01	0.02	0.01	0.02				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19980701		19980930		28	4.9
	0.0116	0.0325	0.3	0.84	0.28	0.78	0.24	0.67	0.18	0.5	0.05	0.14
	0.09	0.25	0.02	0.06	0.01	0.03	0.02	0.06				
QUART	CAPM84152B		Goose Bay B		53.29	60.388	19981001		19981231		26.9	5.1
	0.0072	0.0194	0.24	0.65	0.19	0.51	0.22	0.59	0.29	0.78	0.026	0.07
	0.16	0.43	0.02	0.05	0.02	0.05	0.02	0.05				

```
SUMPR      SITEID     SITENAME              LAT        LON        STARTPER              ENDPER                TOTPRCP               pH
           HPLCN      HPLDP      SO4CN      SO4DP      XSO4CN                XSO4DP                NO3CN      NO3DP      CLDN       CLDP
           NH4CN      NH4DP      NACN       NADP       CACN       CADP       MGCN       MGDP       KCN        KDP
YEAR       CAPM84152A            Goose Bay             53.29      60.388     19840101              19841231              93.9       4.8
           0.015      0.1408     0.85       7.98       0.8        7.51       0.46       4.32       .          .          .          .
           .          .          0.12       1.13       0.02       0.19       0.03       0.28
YEAR       CAPM84152A            Goose Bay             53.29      60.388     19850101              19851231              100.5      4.9
           0.0117     0.1176     0.4        4.02       0.39       3.92       0.25       2.51       0.11       1.11       0.037      0.372
           0.05       0.5        0.02       0.2        0.01       0.1        0.01       0.1
YEAR       CAPM84152A            Goose Bay             53.29      60.388     19860101              19861231              90.1       4.8
           0.0144     0.1297     0.42       3.78       0.4        3.6        0.26       2.34       0.09       0.81       0.048      0.432
           0.05       0.45       0.02       0.18       0.01       0.09       0.01       0.09
YEAR       CAPM84152A            Goose Bay             53.29      60.388     19870101              19871231              84.1       4.9
           0.0133     0.1118     0.55       4.62       0.53       4.46       0.25       2.1        0.19       1.6        0.057      0.479
           0.11       0.92       0.02       0.17       0.01       0.08       0.02       0.17
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19890101              19891231              117.4      5
           0.0103     0.1209     0.39       4.58       0.36       4.23       0.28       3.29       0.21       2.47       0.053      0.622
           0.13       1.53       0.02       0.23       0.01       0.12       0.02       0.23
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19900101              19901231              85.5       4.8
           0.0146     0.1248     0.59       5.05       0.58       4.96       0.35       2.99       0.12       1.03       0.068      0.581
           0.06       0.51       0.03       0.26       0.01       0.09       0.03       0.26
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19910101              19911231              78.5       4.9
           0.012      0.0942     0.47       3.69       0.45       3.53       0.33       2.59       0.17       1.34       0.053      0.416
           0.08       0.63       0.03       0.24       0.02       0.16       0.02       0.16
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19920101              19921231              84.2       4.8
           0.0167     0.1406     0.67       5.64       0.65       5.47       0.36       3.03       0.16       1.35       0.075      0.631
           0.08       0.67       0.03       0.25       0.01       0.08       0.01       0.08
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19930101              19931231              80.2       4.9
           0.0126     0.101      0.32       2.57       0.31       2.49       0.31       2.49       0.09       0.72       0.044      0.353
           0.05       0.42       0.03       0.24       0.01       0.08       0.02       0.16
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19940101              19941231              91.1       4.8
           0.0153     0.1394     0.43       3.92       0.41       3.74       0.37       3.37       0.19       1.73       0.075      0.683
           0.09       0.82       0.03       0.27       0.02       0.18       0.02       0.18
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19950101              19951231              86.6       4.9
           0.0136     0.1178     0.4        3.46       0.37       3.2        0.33       2.86       0.16       1.39       0.068      0.589
           0.08       0.69       0.04       0.35       0.01       0.09       0.02       0.17
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19960101              19961231              112.4      5
           0.011      0.1236     0.33       3.71       0.3        3.37       0.29       3.26       0.27       3.03       0.05       0.562
           0.15       1.69       0.02       0.22       0.02       0.22       0.02       0.22
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19970101              19971231              111.8      5
           0.0107     0.1196     0.34       3.8        0.32       3.58       0.24       2.68       0.18       2.01       0.05       0.559
           0.1        1.12       0.02       0.22       0.01       0.11       0.01       0.11
YEAR       CAPM84152B            Goose Bay B           53.29      60.388     19980101              19981231              107.7      5.1
           0.0084     0.0905     0.24       2.58       0.21       2.26       0.24       2.58       0.19       2.05       0.04       0.431
           0.1        1.08       0.02       0.22       0.01       0.11       0.02       0.22
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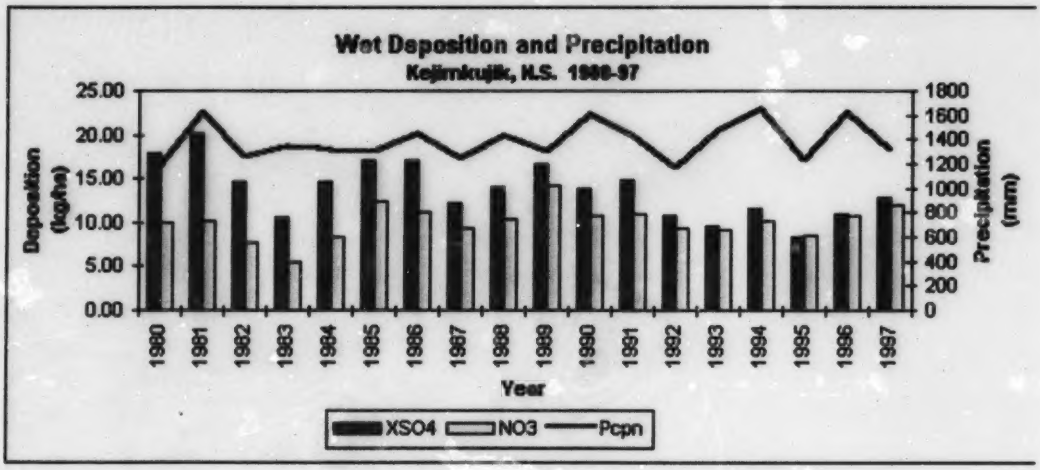
Kejimkujik, Nova Scotia

CAPM86231A Kejimkujik 06/02/83 / /
The Kejimkujik site is located inside the Kejimkujik National Park boundary, 105 km southeast of Saint John, New Brunswick and 1.4 km south-southwest of the village of Maitland Bridge in southwestern Nova Scotia. The site is on a small cleared piece of land covered by grass and shrub, and surrounded by mixed forest. The trees around the site are 11-12 metres high and the nearest one is 17.3 metres from the sampler. The site topography slopes away on three sides with a slight rise to the northwest. The general topography of the area is rolling hills covered with trees with large lakes to the southwest. There are several roads in the area: a highway 1 km northeast, a road 0.5 km northeast, a gravel access road 0.8 km east-northeast and another gravel access road 0.8 km southeast. The only major industry, other than sawmills, in the area is a pulp mill 57 km southeast.

Graph



Use the link below to download the data.
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- **Data as Excel File**
- **Data as Dbase File**

Quarterly Data

- **Data as Excel File**
- **Data as Dbase File**

Yearly Data

- Data as Excel File
- Data as Dbase File

```
SUMPR     SITEID    SITENAME  LAT       LON       STARTPER            ENDPER              TOTPRCP             pH
          HPLCN     HPLDP     SO4CN     SO4DP     XSO4CN              XSO4DP              NO3CN     NO3DP     CLDN      CLDP
          NH4CN     NH4DP     NACN      NADP      CACN      CADP      MGCN      MGDP      KCN       KDP
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19830701            19830731            9.8
          4.7       0.0183    0.018     0.72      0.71      0.68      0.67      0.45      0.44      .         .         .
          .         .         .         0.09      0.09      0.02      0.02      0.02      0.02
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19830801            19830831            12.6
          4.6       0.0248    0.0312    0.64      0.81      0.59      0.74      0.3       0.38      0.5       0.63      .
          .         .         .         0.08      0.1       0.02      0.03      0.01      0.01
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19830901            19830930            4.2
          .         .         .         .         .         .         .         0.45      0.19      0.56      0.23      0.135
          0.056     0.41      0.17      0.03      0.01      0.03      0.01      0.05      0.02
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19831001            19831031            7.2
          4.9       0.0131    0.0094    1.07      0.77      0.91      0.65      0.41      0.29      .         .         .
          .         .         .         0.19      0.14      0.09      0.06      0.04      0.03
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19831101            19831130            13.8
          4.7       0.0188    0.026     1.05      1.45      0.67      0.93      0.41      0.57      2.48      3.43      .
          .         1.67      2.31      0.09      0.12      0.17      0.24      0.07      0.1
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19831201            19831231            14.8
          4.7       0.018     0.0267    0.88      1.31      0.71      1.05      0.65      0.96      1.3       1.93      .
          .         0.78      1.16      0.12      0.18      0.08      0.12      0.04      0.06
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840101            19840131            14.4
          4.6       0.0236    0.034     1.24      1.79      1.12      1.62      0.8       1.15      0.84      1.21      .
          .         0.48      0.69      0.19      0.27      0.07      0.1       0.03      0.04
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840201            19840229            11.9
          5         0.01      0.0119    0.88      1.04      0.74      0.88      0.4       0.47      1.44      1.71      .
          .         .         .         0.23      0.27      0.07      0.08      0.03      0.04
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840301            19840331            15
          5.1       0.0086    0.0129    1.16      1.74      0.87      1.31      0.28      0.42      2.02      3.04      .
          .         .         .         0.36      0.54      0.16      0.24      0.05      0.08
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840401            19840430            14
          4.8       0.0158    0.0222    0.76      1.07      0.65      0.91      0.51      0.72      0.62      0.87      0.046
          0.065     .         .         0.18      0.25      0.05      0.07      0.02      0.03
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840501            19840531            15.5
          4.8       0.0153    0.0238    1.36      2.11      1.21      1.88      0.58      0.9       .         .         .
          .         .         .         .         .         0.1       0.16      0.06      0.09
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840601            19840630            8.7
          4.5       0.03      0.0262    1.55      1.35      1.35      1.18      0.74      0.65      1.24      1.08      .
          .         0.86      0.75      .         .         0.09      0.08      0.07      0.06
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840701            19840731            9.6
          4.6       0.0268    0.0256    1.6       1.53      1.46      1.4       0.78      0.75      0.89      0.85      .
          .         0.5       0.48      .         .         0.07      0.07      0.03      0.03
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840801            19840831            11.7
          4.4       0.0411    0.0481    1.76      2.06      1.7       1.99      0.96      1.12      0.47      0.55      0.14
          0.164     .         .         .         .         0.03      0.04      0.04      0.05
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19840901            19840930            8
          4.5       0.0286    0.023     1.37      1.1       1.35      1.09      0.58      0.47      .         .         0.109
          0.088     .         .         .         .         0.01      0.01      0.02      0.02
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19841001            19841031            5.1
          4.4       0.0408    0.0207    1.79      0.91      1.66      0.84      0.95      0.48      .         .         0.155
          0.079     .         .         0.08      0.04      0.06      0.03      0.04      0.02
MONTH               CAPM86231A          Kejimkujik          44.434    65.206    19841101            19841130            3.6
          4.5       0.032     0.0116    1.84      0.67      1.48      0.54      1.09      0.4       2.27      0.83      0.128
          0.047     1.62      0.59      0.12      0.04      0.16      0.06      0.1       0.04
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MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19841201        19841231      13.9
      4.7   0.0193  0.0268  1.06    1.47    0.75    1.04    0.57    0.79    1.25    1.74    0.023
    0.032   1.26    1.75    0.08    0.11    0.15    0.21    0.06    0.08
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850101        19850131      11.5
      4.6   0.0271  0.0311  1.65    1.9     0.68    0.78    0.74    0.85    3.93    4.52    0.024
    0.028   4.52    5.19    0.19    0.22    0.44    0.51    0.17    0.2
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850201        19850228      10.6
      4.4   0.0451  0.0478  1.02    1.08    0.91    0.96    1       1.06    0.75    0.79    0.063
    0.067   0.43    0.46    0.04    0.04    0.05    0.05    0.03    0.03
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850301        19850331      10.9
      4.3   0.0464  0.0505  1.18    1.29    1.08    1.18    0.75    0.82    0.71    0.77    0.091
    0.099   0.35    0.38    0.06    0.07    0.05    0.05    0.02    0.02
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850401        19850430      9.2
      4.2   0.0617  0.0567  1.95    1.79    1.79    1.65    1.28    1.18    1.15    1.06    0.198
    0.182   0.63    0.58    0.1     0.09    0.08    0.07    0.03    0.03
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850501        19850531      14.3
      4.3   0.0508  0.0725  1.98    2.83    1.95    2.78    1.09    1.56    0.25    0.36    0.237
    0.338   0.12    0.17    0.1     0.14    0.03    0.04    0.02    0.03
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850601        19850630      17.9
      4.5   0.035   0.0627  1.57    2.81    1.52    2.72    0.76    1.36    0.33    0.59    0.149
    0.267   0.16    0.29    0.03    0.05    0.02    0.04    0.02    0.04
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850701        19850731      7.3
      4.3   0.0524  0.0383  2.41    1.76    2.39    1.74    1.23    0.9     0.14    0.1     0.24
    0.175   0.09    0.07    0.03    0.02    0.01    0.01    0.02    0.01
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850801        19850831      13.4
      4.5   0.0322  0.0433  1.31    1.76    1.29    1.73    0.76    1.02    0.17    0.23    0.106
    0.142   0.06    0.08    0.01    0.01    0.01    0.01    0.01    0.01
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19850901        19850930      2.1
      4.3   0.0455  0.0094  2.36    0.49    2.08    0.43    1.09    0.22    2.02    0.42    0.222
    0.046   1.11    0.23    0.1     0.02    0.14    0.03    0.05    0.01
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19851001        19851031      5.8
      4.4   0.0416  0.0241  1.75    1.02    1.69    0.98    1.19    0.69    0.46    0.27    0.164
    0.095   0.28    0.16    0.06    0.03    0.03    0.02    0.02    0.01
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19851101        19851130      16.3
      4.6   0.0236  0.0385  0.91    1.48    0.73    1.19    0.77    1.26    1.29    2.1     0.061
    0.099   0.78    1.27    0.05    0.08    0.09    0.15    0.03    0.05
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19851201        19851231      10.7
      4.5   0.0356  0.038   1.32    1.41    0.8     0.85    1.33    1.42    3.68    3.93    0.073
    0.078   2.11    2.25    0.1     0.11    0.22    0.23    0.06    0.06
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19860101        19860131      15.3
      4.7   0.0222  0.034   0.95    1.45    0.46    0.7     0.72    1.1     3.92    6       0.053
    0.081   2.1     3.21    0.1     0.15    0.24    0.37    0.08    0.12
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19860201        19860228      8.1
      .     .       .       .       .       .       .       .       .       .       .       .
      .     .       .       .       .       .       .       .       .
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19860301        19860331      16.5
      4.5   0.0345  0.0569  1.43    2.36    1.32    2.18    0.82    1.35    0.85    1.4     0.143
    0.236   0.45    0.74    0.09    0.15    0.06    0.1     0.02    0.03
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19860401        19860430      13.4
      4.6   0.0244  0.0327  0.82    1.1     0.77    1.03    0.44    0.59    0.33    0.44    0.095
    0.127   0.19    0.25    0.02    0.03    0.02    0.03    0.02    0.03
MONTH       CAPM86231A  Kejimkujik       44.434  65.206  19860501        19860531      6.9
      4.3   0.0521  0.0359  2.13    1.47    2.07    1.43    1.26    0.87    0.42    0.29    0.252
    0.174   0.23    0.16    0.07    0.05    0.03    0.02    0.02    0.01
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MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19860601     19860630     10.8
      4.1   0.0834 0.0901 2.94  3.18  2.91    3.14    1.43   1.54  0.24   0.26  0.308
      0.333 0.1    0.11   0.06  0.06  0.02    0.02    0.02   0.02
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19860701     19860731     18.3
      4.5   0.0335 0.0614 1.01  1.85  1       1.83    0.56   1.03  0.1    0.18  0.077
      0.141 0.03   0.05   0.02  0.04  0.01    0.02    0.01   0.02
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19860801     19860831     13.8
      4.2   0.0638 0.0878 2.1   2.89  2.08    2.86    1.1    1.51  0.15   0.21  0.168
      0.231 0.07   0.1    0.02  0.03  0.01    0.01    0.01   0.01
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19860901     19860930     10.4
      4.3   0.0464 0.0484 1.59  1.66  1.54    1.61    1.06   1.11  0.38   0.4   0.123
      0.128 0.23   0.24   0.02  0.02  0.03    0.03    0.01   0.01
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19861001     19861031     6.2
      4.6   0.027  0.0166 0.92  0.57  0.86    0.53    0.71   0.44  0.46   0.28  0.089
      0.055 0.27   0.17   .     .     .       .       .      .
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19861101     19861130     13.5
      4.7   0.0191 0.0258 0.65  0.88  0.56    0.76    0.51   0.69  0.65   0.88  0.042
      0.057 0.31   0.42   0.02  0.03  0.04    0.05    0.02   0.03
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19861201     19861231     12.3
      4.9   0.0122 0.015  0.42  0.51  0.3     0.37    0.34   0.42  0.79   0.97  0.026
      0.032 0.46   0.56   0.02  0.02  0.06    0.07    0.02   0.02
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870101     19870131     18.7
      4.7   0.0186 0.0347 0.62  1.16  0.41    0.77    0.65   1.22  1.46   2.72  0.04
      0.075 0.84   1.57   0.05  0.09  0.1     0.19    0.04   0.07
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870201     19870228     3.8
      4.6   0.028  0.0105 0.95  0.36  0.57    0.21    0.97   0.36  2.8    1.05  0.052
      0.02  1.54   0.58   0.33  0.12  0.17    0.06    0.07   0.03
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870301     19870331     12.8
      5     0.0108 0.0138 0.39  0.5   0.36    0.46    0.27   0.34  0.21   0.27  0.034
      0.043 0.12   0.15   0.01  0.01  0.01    0.01    0.01   0.01
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870401     19870430     8
      4.5   0.0309 0.0247 1.49  1.19  1.35    1.08    1.02   0.82  0.99   0.79  0.179
      0.143 0.59   0.47   0.08  0.06  0.08    0.06    0.03   0.02
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870501     19870531     7.5
      4.3   0.0512 0.0385 2.48  1.86  2.42    1.82    1.48   1.11  0.42   0.32  0.321
      0.241 0.24   0.18   0.1   0.08  0.04    0.03    0.02   0.02
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870601     19870630     8.6
      .     .      .      .     .     .       .       .      .     .      .     .
      .     .      .      .     .     .       .       .      .
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870701     19870731     3.6
      3.9   0.1258 0.0453 6.58  2.37  6.57    2.37    2.46   0.89  0.14   0.05  0.443
      0.159 0.04   0.01   0.05  0.02  0.01    0       0.04   0.01
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870801     19870831     4.8
      4.3   0.0455 0.022  1.83  0.89  1.79    0.87    1.16   0.56  0.29   0.14  0.172
      0.083 0.15   0.07   0.02  0.01  0.02    0.01    0.02   0.01
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19870901     19870930     10.5
      4.8   0.0167 0.0176 0.65  0.69  0.6     0.63    0.43   0.45  0.37   0.39  0.047
      0.05  0.21   0.22   0.03  0.03  0.03    0.03    0.01   0.01
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19871001     19871031     14.9
      4.7   0.0193 0.0287 0.84  1.25  0.71    1.06    0.6    0.89  0.86   1.28  0.083
      0.124 0.5    0.74   0.03  0.04  0.06    0.09    0.02   0.03
MONTH       CAPM86231A  Kejimkujik   44.434  65.206  19871101     19871130     19.4
      4.6   0.0228 0.0442 0.73  1.41  0.67    1.3     0.78   1.51  0.49   0.95  0.066
      0.128 0.27   0.52   0.03  0.06  0.04    0.08    0.02   0.04
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MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19871201              19871231              11.2
    4.7    0.0184     0.0207     0.67       0.75       0.53       0.6        0.65       0.73       1.03       1.16       0.025
    0.028  0.25       0.28       0.03       0.03       0.03       0.03       0.02       0.02
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880101              19880131              9.2
    .      .          .          .          .          .          .          .          .          .          .          0.044
    0.04   .          .          .          .          .          .          0.1        0.09
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880201              19880229              18.9
    4.6    0.0274     0.0517     1.05       1.98       0.9        1.7        0.82       1.55       1.04       1.96       0.077
    0.145  0.53       1          0.04       0.08       0.06       0.11       0.02       0.04
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880301              19880331              5.7
    4.3    0.0471     0.0288     1.73       1.06       1.38       0.84       1.99       1.22       2.46       1.4        0.222
    0.136  1.36       0.78       0.1        0.06       0.17       0.1        0.06       0.03
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880401              19880430              14.1
    4.8    0.0173     0.0244     0.84       1.19       0.79       1.12       0.38       0.54       0.35       0.49       0.08
    0.113  0.2        0.28       0.04       0.06       0.03       0.04       0.03       0.04
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880501              19880531              4.9
    4.3    0.0508     0.0247     2.61       1.27       2.52       1.22       1.58       0.77       0.64       0.31       0.307
    0.149  0.35       0.17       0.09       0.04       0.05       0.02       0.07       0.03
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880601              19880630              8.7
    4.4    0.0367     0.032      1.69       1.47       1.67       1.45       0.92       0.8        0.16       0.14       0.191
    0.166  0.1        0.09       0.07       0.06       0.02       0.02       0.02       0.02
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880701              19880731              18.3
    4.4    0.0382     0.0698     1.53       2.8        1.52       2.78       0.87       1.59       0.09       0.16       0.098
    0.179  0.05       0.09       0.02       0.04       0.01       0.02       0.01       0.02
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880801              19880831              6.4
    4.5    0.0329     0.0211     1.47       0.94       1.29       0.83       0.78       0.5        1.27       0.81       0.169
    0.108  0.61       0.39       0.1        0.06       0.09       0.06       0.03       0.02
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19880901              19880930              7
    4.6    0.0239     0.0166     1.15       0.8        1.13       0.79       0.53       0.37       0.17       0.12       0.131
    0.091  0.08       0.06       0.03       0.02       0.01       0.01       0.02       0.01
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19881001              19881031              15.2
    4.7    0.0191     0.029      0.75       1.14       0.67       1.02       0.49       0.74       0.59       0.9        0.052
    0.079  0.34       0.52       0.03       0.05       0.04       0.06       0.02       0.03
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19881101              19881130              26.8
    5      0.0109     0.0293     0.49       1.32       0.36       0.97       0.27       0.72       0.92       2.47       0.026
    0.07   0.54       1.45       0.03       0.08       0.06       0.16       0.02       0.05
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19881201              19881231              7.7
    .      .          .          1.16       0.9        0.84       0.65       1.52       1.17       2.13       1.64       0.09
    0.069  .          .          .          .          .          .          .          .
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19890101              19890131              9.8
    4.5    0.0349     0.034      1.67       1.63       0.99       0.97       1.39       1.36       4.96       4.84       0.106
    0.103  2.71       2.64       0.13       0.13       0.3        0.29       0.1        0.1
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19890201              19890228              16
    4.5    0.0287     0.046      0.92       1.47       0.79       1.27       1.09       1.75       0.9        1.44       0.055
    0.088  0.43       0.69       0.04       0.06       0.06       0.1        0.02       0.03
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19890301              19890331              13.2
    4.5    0.0289     0.0381     1.02       1.35       0.99       1.31       0.9        1.19       0.24       0.32       0.108
    0.143  0.13       0.17       0.05       0.07       0.01       0.01       0.01       0.01
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19890401              19890430              6.8
    4.4    0.0381     0.0259     2.03       1.38       1.79       1.22       1.27       0.86       1.69       1.15       0.195
    0.133  0.99       0.67       0.13       0.09       0.12       0.08       0.05       0.03
MONTH      CAPM86231A            Kejimkujik            44.434     65.206     19890501              19890531              9.9
    4.4    0.0394     0.0392     1.83       1.82       1.67       1.66       1.24       1.23       1.02       1.01       0.195
    0.194  0.61       0.61       0.1        0.1        0.07       0.07       0.05       0.05
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MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19890601        19890630        14.8
         4.2   0.0585  0.0866  2.64    3.91    2.61    3.86    1.17    1.73    0.15    0.22    0.284
         0.42  0.07    0.1     0.04    0.06    0.01    0.01    0.02    0.03
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19890701        19890731        5
         4.1   0.0764  0.038   2.7     1.34    2.69    1.34    1.59    0.79    0.12    0.06    0.405
         0.202 0.05    0.03    0.07    0.03    0.02    0.01    0.02    0.01
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19890801        19890831        4.5
         4.5   0.0329  0.0165  1.44    0.72    1.35    0.68    0.86    0.43    0.65    0.29    0.142
         0.071 0.38    0.17    0.04    0.02    0.05    0.02    0.03    0.01
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19890901        19890930        11.2
         4.6   0.0235  0.0275  0.98    1.15    0.93    1.09    0.59    0.69    0.35    0.41    0.101
         0.118 0.21    0.25    0.02    0.02    0.03    0.04    0.01    0.01
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19891001        19891031        10.5
         4.9   0.0124  0.013   0.67    0.7     0.53    0.55    0.32    0.33    0.93    0.97    0.042
         0.044 0.55    0.58    0.03    0.03    0.06    0.06    0.02    0.02
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19891101        19891130        18
         4.4   0.036   0.0649  1.51    2.72    1.13    2.04    1.31    2.36    2.64    4.76    0.118
         0.213 1.34    2.41    0.08    0.14    0.18    0.32    0.07    0.13
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19891201        19891231        10.8
         .     .       .       1.8     1.94    0.74    0.8     1.87    2.02    7.17    7.73    .
         .     4.25    4.58    0.19    0.2     0.5     0.54    0.17    0.18
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900101        19900131        13.4
         4.7   0.0215  0.0289  0.77    1.03    0.68    0.91    0.79    1.06    0.61    0.82    0.065
         0.087 0.34    0.46    0.03    0.04    0.04    0.05    0.02    0.03
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900201        19900228        12.8
         4.6   0.0259  0.0332  0.83    1.06    0.75    0.96    0.97    1.24    0.49    0.63    0.115
         0.147 0.26    0.33    0.03    0.04    0.03    0.04    0.02    0.03
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900301        19900331        7.4
         4.4   0.0443  0.0327  1.77    1.31    1.7     1.25    1.35    1       0.52    0.38    0.201
         0.148 0.3     0.22    0.06    0.04    0.04    0.03    0.02    0.01
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900401        19900430        20.6
         .     .       .       .       .       .       .       .       .       .       .       .
         .     .       .       .       .       .       .       .       .
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900501        19900531        16.8
         4.8   0.0168  0.0282  0.71    1.19    0.68    1.14    0.47    0.79    0.21    0.35    0.074
         0.124 0.25    0.42    0.04    0.07    0.03    0.05    0.02    0.03
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900601        19900630        11.3
         4.5   0.0338  0.0381  1.47    1.66    1.46    1.64    0.94    1.06    0.13    0.15    0.152
         0.171 0.07    0.08    0.03    0.03    0.01    0.01    0.02    0.02
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900701        19900731        13.1
         4.7   0.0187  0.0245  0.73    0.96    0.67    0.88    0.44    0.58    0.4     0.52    0.052
         0.068 0.27    0.35    0.04    0.05    0.03    0.04    0.03    0.04
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900801        19900831        6.2
         .     .       .       .       .       .       .       .       .       .       .       .
         .     .       .       .       .       .       .       .       .
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19900901        19900930        8.8
         4.4   0.036   0.0317  1.58    1.39    1.55    1.37    0.72    0.63    0.2     0.18    0.137
         0.121 0.11    0.1     0.03    0.03    0.02    0.02    0.01    0.01
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19901001        19901031        11.6
         4.6   0.0233  0.027   1.03    1.19    0.86    1       0.69    0.8     1.2     1.39    0.082
         0.095 0.7     0.81    0.05    0.06    0.09    0.1     0.03    0.03
MONTH          CAPM86231A      Kejimkujik      44.434  65.206  19901101        19901130        16.1
         4.8   0.0152  0.0245  0.77    1.24    0.57    0.92    0.45    0.73    1.16    1.87    0.043
         0.069 0.8     1.29    0.07    0.11    0.09    0.15    0.06    0.1
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MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19901201           19901231           22.6
   .            .      .      .        .        .       .      .        .          .        .         .
   .            .      .      .        .        .       .      .        .
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910101           19910131           13.6
       4.6   0.0275 0.0374 1.08    1.47      0.69    0.94    0.99     1.35      2.34     3.18      0.062
     0.084   1.28   1.74   0.07    0.1       0.19    0.26    0.05     0.07
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910201           19910228           5.4
       4.4   0.045  0.0243 1.92    1.03      1.47    0.79    1.61     0.87      3.26     1.76      0.139
     0.075   1.81   0.98   0.13    0.07      0.22    0.12    0.08     0.04
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910301           19910331           19
       4.9   0.012  0.0228 0.57    1.08      0.49    0.93    0.34     0.65      0.57     1.08      0.045
     0.086   0.33   0.63   0.04    0.08      0.04    0.08    0.02     0.04
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910401           19910430           11.8
       4.6   0.0275 0.0325 1.18    1.39      1.15    1.36    0.78     0.92      0.25     0.3       0.161
     0.19    0.12   0.14   0.05    0.06      0.02    0.02    0.01     0.01
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910501           19910531           8.9
       4.6   0.0282 0.0252 1.32    1.18      1.29    1.15    0.82     0.73      0.22     0.2       0.161
     0.144   0.11   0.1    0.07    0.06      0.02    0.02    0.02     0.02
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910601           19910630           5.3
       4.3   0.0565 0.0299 2.99    1.58      2.96    1.57    1.27     0.67      0.26     0.14      0.437
     0.232   0.13   0.07   0.09    0.05      0.03    0.02    0.03     0.02
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910701           19910731           8.6
       4.6   0.0254 0.0219 0.85    0.73      0.84    0.72    0.79     0.68      0.11     0.09      0.072
     0.062   0.04   0.03   0.02    0.02      0.01    0.01    0.01     0.01
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910801           19910831           16.6
       4.7   0.0209 0.0347 0.97    1.61      0.93    1.54    0.5      0.83      0.29     0.48      0.07
     0.116   0.16   0.27   0.03    0.05      0.02    0.03    0.01     0.02
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19910901           19910930           13
       4.5   0.0288 0.0375 1.27    1.65      1.2     1.56    0.76     0.99      0.48     0.62      0.106
     0.138   0.28   0.36   0.03    0.04      0.04    0.05    0.02     0.03
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19911001           19911031           11.8
       4.5   0.0349 0.041  1.79    2.11      1.67    1.96    0.84     0.99      0.9      1.06      0.141
     0.166   0.5    0.59   0.06    0.07      0.06    0.07    0.04     0.05
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19911101           19911130           19.8
       4.8   0.015  0.0296 0.52    1.03      0.48    0.95    0.43     0.85      0.26     0.51      0.046
     0.091   0.14   0.28   0.02    0.04      0.02    0.04    0.01     0.02
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19911201           19911231           10
       4.4   0.0373 0.0372 1.3     1.29      0.96    0.96    1.46     1.45      2.48     2.47      0.096
     0.096   1.37   1.36   0.07    0.07      0.16    0.16    0.05     0.05
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19920101           19920131           14
       4.7   0.018  0.0252 1.02    1.43      0.58    0.81    0.62     0.87      3.16     4.43      0.04
     0.056   1.74   2.44   0.08    0.11      0.22    0.31    0.06     0.08
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19920201           19920229           16.2
       4.7   0.0216 0.035  0.74    1.2       0.5     0.81    0.83     1.34      1.64     2.66      0.056
     0.091   0.9    1.46   0.05    0.08      0.11    0.18    0.04     0.06
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19920301           19920331           14
       4.9   0.0135 0.019  0.85    1.19      0.53    0.74    0.45     0.63      2.25     3.16      0.053
     0.074   1.31   1.84   0.07    0.1       0.16    0.22    0.05     0.07
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19920401           19920430           7.1
       4.6   0.0284 0.0203 1.06    0.76      1.02    0.73    0.72     0.51      0.31     0.22      0.102
     0.077   0.16   0.11   0.02    0.01      0.02    0.01    0.01     0.01
MONTH        CAPM86231A    Kejimkujik        44.434  65.206  19920501           19920531           4.2
       4.2   0.0618 0.0262 2.42    1.03      2.34    0.99    1.74     0.74      0.6      0.25      0.268
     0.114   0.34   0.14   0.06    0.03      0.05    0.02    0.02     0.01
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MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19920601        19920630        8.3
      4.2   0.0628  0.0524  2.82    2.35    2.7     2.25    1.63    1.36    0.92    0.77    0.364
    0.304   0.5     0.42    0.07    0.06    0.07    0.06    0.05    0.04
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19920701        19920731        7.4
      4.4   0.0447  0.0329  1.72    1.27    1.7     1.25    1.3     0.96    0.15    0.11    0.176
     0.13   0.06    0.04    0.03    0.02    0.01    0.01    0.02    0.01
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19920801        19920831        5.6
      4.8   0.0151  0.0085  0.59    0.33    0.53    0.3     0.37    0.21    0.4     0.23    0.046
    0.026   0.21    0.12    0.02    0.01    0.03    0.02    0.01    0.01
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19920901        19920930        6.2
      4.6   0.0272  0.0169  0.89    0.55    0.85    0.53    0.7     0.43    0.31    0.19    0.054
    0.034   0.15    0.09    0.02    0.01    0.02    0.01    0.01    0.01
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19921001        19921031        9.3
      4.5   0.0291  0.0272  1.01    0.94    0.91    0.85    0.99    0.92    0.71    0.66    0.095
    0.089   0.39    0.36    0.04    0.04    0.05    0.05    0.02    0.02
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19921101        19921130        12.6
      4.7   0.02    0.0251  0.71    0.89    0.65    0.82    0.45    0.56    0.38    0.48    0.043
    0.054   0.21    0.26    0.02    0.03    0.03    0.04    0.01    0.01
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19921201        19921231        12.6
      4.7   0.0218  0.0275  1.04    1.31    0.57    0.72    0.69    0.87    3.21    4.05    0.045
    0.057   1.84    2.32    0.08    0.1     0.23    0.29    0.07    0.09
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930101        19930131        13.9
      4.8   0.0156  0.0217  0.67    0.93    0.37    0.52    0.56    0.78    2.16    3.01    0.023
    0.032   1.15    1.6     0.06    0.08    0.15    0.21    0.05    0.07
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930201        19930228        11.3
      4.8   0.0163  0.0184  0.66    0.74    0.46    0.52    0.73    0.82    1.37    1.54    0.031
    0.035   0.59    0.66    0.05    0.06    0.07    0.08    0.02    0.02
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930301        19930331        17.2
        5   0.0105  0.018   0.55    0.94    0.28    0.48    0.2     0.34    2.01    3.45    0.013
    0.022   1.08    1.86    0.07    0.12    0.15    0.26    0.06    0.1
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930401        19930430        13.5
      4.8   0.016   0.0216  0.68    0.92    0.53    0.72    0.33    0.45    1.2     1.66    0.056
    0.076   0.66    0.92    0.05    0.07    0.09    0.12    0.03    0.04
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930501        19930531        8.4
      4.4   0.0397  0.0334  1.57    1.32    1.54    1.3     1.21    1.02    0.29    0.24    0.254
    0.214   0.15    0.13    0.07    0.06    0.03    0.03    0.02    0.02
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930601        19930630        9.4
      4.3   0.0486  0.0474  1.61    1.57    1.56    1.52    1.18    1.15    0.38    0.36    0.177
    0.173   0.19    0.18    0.03    0.03    0.03    0.03    0.04    0.04
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930701        19930731        4.9
      4.4   0.039   0.019   1.3     0.63    1.25    0.61    0.86    0.42    0.37    0.18    0.208
    0.101   0.19    0.09    0.03    0.01    0.03    0.01    0.02    0.01
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930801        19930831        4.6
      4.3   0.0491  0.0226  1.3     0.6     1.28    0.59    1.26    0.58    0.21    0.1     0.169
    0.078   0.08    0.04    0.02    0.01    0.02    0.01    0.01    0
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19930901        19930930        9.4
      4.5   0.0334  0.0313  1.07    1       1.02    0.95    0.82    0.77    0.39    0.37    0.116
    0.109   0.2     0.19    0.02    0.02    0.03    0.03    0.03    0.03
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19931001        19931031        17
      4.8   0.017   0.029   0.61    1.04    0.52    0.89    0.53    0.9     0.61    1.04    0.075
    0.128   0.33    0.56    0.04    0.07    0.05    0.09    0.02    0.03
MONTH       CAPM86231A      Kejimkujik      44.434  65.206  19931101        19931130        14.5
      4.7   0.0206  0.0298  0.8     1.16    0.61    0.88    0.69    1       1.3     1.88    0.074
    0.107   0.75    1.08    0.04    0.06    0.09    0.13    0.04    0.06
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MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19931201        19931231        24.4
        4.9     0.0134  0.0327  0.6     1.46    0.29    0.71    0.39    0.95    2.19    5.34    0.024
        0.059   1.22    2.97    0.06    0.15    0.16    0.39    0.04    0.1
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940101        19940131        19.4
        4.8     0.0164  0.0318  0.66    1.28    0.3     0.58    0.59    1.14    2.72    5.28    0.025
        0.049   1.5     2.91    0.07    0.14    0.19    0.37    0.06    0.12
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940201        19940228        5.6
        4.6     0.0271  0.0151  0.65    0.36    0.37    0.21    1.43    0.8     1.99    1.11    0.054
        0.03    0.85    0.47    0.08    0.04    0.11    0.06    0.04    0.02
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940301        19940331        28
        4.8     0.0176  0.0493  0.57    1.6     0.48    1.34    0.41    1.15    0.64    1.79    0.053
        0.148   0.36    1.01    0.03    0.08    0.05    0.14    0.02    0.06
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940401        19940430        17.6
        4.6     0.0247  0.0434  1.17    2.06    1.1     1.93    0.79    1.39    0.5     0.88    0.216
        0.38    0.3     0.53    0.08    0.14    0.05    0.09    0.02    0.04
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940501        19940531        17.4
        4.7     0.0212  0.0368  0.97    1.68    0.93    1.61    0.57    0.99    0.34    0.59    0.143
        0.248   0.17    0.29    0.03    0.05    0.03    0.05    0.02    0.03
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940601        19940630        9.1
        4.6     0.027   0.0245  1.25    1.14    1.18    1.07    0.81    0.74    0.49    0.45    0.178
        0.162   0.27    0.25    0.08    0.07    0.05    0.05    0.03    0.03
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940701        19940731        6.1
        4.5     0.0304  0.0185  1.21    0.74    1.18    0.72    0.84    0.51    0.29    0.18    0.159
        0.097   0.15    0.1     0.03    0.02    0.02    0.01    0.01    0.01
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940801        19940831        9.6
        .       .       .       .       .       .       .       .       .       .       .       .
        .       .       .       .       .       .       .       .       .
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19940901        19940930        11
        4.5     0.0294  0.0324  1.31    1.44    1.11    1.22    0.81    0.89    1.37    1.51    0.135
        0.149   0.81    0.89    0.04    0.04    0.09    0.1     0.02    0.02
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19941001        19941031        4
        4.8     0.0165  0.0066  0.72    0.29    0.59    0.23    0.52    0.21    0.94    0.37    0.074
        0.029   0.49    0.19    0.03    0.01    0.06    0.02    0.03    0.01
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19941101        19941130        18.2
        4.9     0.0118  0.0215  0.67    1.22    0.35    0.64    0.45    0.82    2.43    4.42    0.055
        0.1     1.38    2.51    0.09    0.16    0.18    0.33    0.06    0.11
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19941201        19941231        20
        5       0.0094  0.0188  0.46    0.92    0.36    0.72    0.29    0.58    0.69    1.38    0.017
        0.034   0.37    0.74    0.03    0.06    0.05    0.1     0.02    0.04
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19950101        19950131        14.9
        4.7     0.0216  0.0321  0.82    1.22    0.53    0.79    0.81    1.2     2.12    3.15    0.039
        0.058   1.14    1.7     0.06    0.09    0.15    0.22    0.05    0.07
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19950201        19950228        15
        4.7     0.0183  0.0275  0.74    1.11    0.5     0.75    0.69    1.04    1.7     2.56    0.086
        0.129   0.94    1.41    0.04    0.06    0.11    0.17    0.03    0.05
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19950301        19950331        5.4
        4.7     0.0188  0.0102  0.86    0.47    0.57    0.31    0.48    0.26    1.98    1.08    0.069
        0.037   1.07    0.58    0.06    0.03    0.14    0.08    0.06    0.03
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19950401        19950430        11.1
        4.5     0.0351  0.0388  1.54    1.7     1.48    1.64    1.09    1.2     0.64    0.71    0.241
        0.266   0.24    0.27    0.06    0.07    0.09    0.1     0.11    0.12
MONTH           CAPM86231A      Kejimkujik      44.434  65.206  19950501        19950531        6.6
        4.6     0.0229  0.0152  0.76    0.5     0.73    0.48    0.7     0.46    0.26    0.17    0.122
        0.081   0.15    0.1     0.04    0.03    0.02    0.01    0.04    0.03
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MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19950601          19950630          11.6
         4.7      0.0193   0.0224   0.67     0.78     0.65     0.75     0.58     0.67     0.19     0.22     0.119
         0.138    0.11     0.13     0.04     0.05     0.02     0.02     0.05     0.06
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19950701          19950731          7.1
         4.4      0.0397   0.0281   1.2      0.85     1.17     0.83     1.3      0.92     0.17     0.12     0.188
         0.133    0.08     0.06     0.03     0.02     0.02     0.01     0.03     0.02
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19950801          19950831          4.7
         4.4      0.0399   0.0186   1.63     0.76     1.58     0.74     0.79     0.37     0.34     0.16     0.208
         0.097    0.17     0.08     0.03     0.01     0.03     0.01     0.02     0.01
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19950901          19950930          5.4
         4.7      0.0206   0.0111   0.78     0.42     0.72     0.39     0.68     0.37     0.47     0.25     0.098
         0.053    0.25     0.14     0.03     0.02     0.03     0.02     0.02     0.01
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19951001          19951031          11.9
         4.9      0.0132   0.0158   0.56     0.67     0.42     0.5      0.44     0.53     0.97     1.16     0.058
         0.069    0.55     0.66     0.03     0.04     0.07     0.08     0.02     0.02
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19951101          19951130          18.7
         4.8      0.0152   0.0283   0.59     1.1      0.43     0.8      0.4      0.75     1.09     2.03     0.041
         0.076    0.65     1.21     0.03     0.06     0.08     0.15     0.03     0.06
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19951201          19951231          10.9
         4.8      0.0161   0.0175   0.62     0.67     0.42     0.46     0.69     0.75     1.45     1.58     0.045
         0.049    0.77     0.84     0.05     0.05     0.09     0.1      0.03     0.03
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960101          19960131          11.1
         4.9      0.0133   0.0147   0.82     0.91     0.39     0.43     0.43     0.48     2.87     3.18     0.034
         0.038    1.72     1.91     0.05     0.06     0.19     0.21     0.06     0.07
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960201          19960229          18.4
         4.7      0.0221   0.0406   0.69     1.27     0.63     1.16     0.79     1.45     0.48     0.88     0.097
         0.178    0.25     0.46     0.04     0.07     0.03     0.06     0.01     0.02
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960301          19960331          10
         4.5      0.0289   0.029    1.34     1.34     0.93     0.93     1.2      1.2      2.85     2.86     0.153
         0.153    1.64     1.64     0.12     0.12     0.19     0.19     0.07     0.07
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960401          19960430          16.8
         4.8      0.0162   0.0273   0.81     1.36     0.69     1.16     0.58     0.98     0.92     1.55     0.127
         0.214    0.5      0.84     0.07     0.12     0.06     0.1      0.03     0.05
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960501          19960531          12
         4.7      0.0191   0.0228   1.35     1.61     1.32     1.58     0.97     1.16     0.2      0.24     0.19
         0.227    0.13     0.16     0.05     0.06     0.03     0.04     0.05     0.06
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960601          19960630          8.5
         4.8      0.015    0.0127   0.58     0.49     0.55     0.46     0.54     0.46     0.18     0.15     0.077
         0.065    0.09     0.08     0.03     0.03     0.02     0.02     0.03     0.03
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960701          19960731          16.2
         4.6      0.0274   0.0443   1.13     1.82     1.08     1.74     1        1.62     0.3      0.48     0.157
         0.254    0.16     0.26     0.07     0.11     0.03     0.05     0.02     0.03
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960801          19960831          3.8
         4.4      0.0377   0.0142   1.53     0.58     1.52     0.57     1.19     0.45     0.08     0.03     0.202
         0.076    0.02     0.01     0.01     0        0.01     0        0.01     0
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19960901          19960930          30.9
         5.1      0.0081   0.025    0.39     1.2      0.31     0.96     0.27     0.83     0.52     1.6      0.033
         0.102    0.31     0.96     0.02     0.06     0.04     0.12     0.02     0.06
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19961001          19961031          10.6
         4.6      0.024    0.0253   1.05     1.11     0.95     1        0.78     0.82     0.7      0.74     0.096
         0.101    0.4      0.42     0.04     0.04     0.05     0.05     0.02     0.02
MONTH             CAPM86231A        Kejimkujik        44.434   65.206   19961101          19961130          8.1
         4.6      0.0229   0.0184   0.84     0.68     0.63     0.51     0.91     0.73     1.49     1.2      0.072
         0.058    0.88     0.71     0.05     0.04     0.11     0.09     0.03     0.02
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MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19961201        19961231        16.3
     4.9  0.0115  0.0187  0.56    0.91    0.34    0.55    0.47    0.78    1.43    2.33    0.028
   0.047  0.61    0.99    0.04    0.07    0.11    0.18    0.04    0.07
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970101        19970131        15.8
     4.7  0.0218  0.0343  0.99    1.56    0.66    1.04    0.8     1.26    2.24    3.53    0.07
    0.11  1.12    1.76    0.05    0.08    0.16    0.25    0.05    0.08
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970201        19970228        11.7
     4.6  0.0281  0.033   0.85    1       0.75    0.88    1.1     1.29    0.62    0.73    0.108
   0.127  0.31    0.36    0.04    0.05    0.05    0.06    0.02    0.02
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970301        19970331        20.6
     4.8  0.0175  0.0361  0.54    1.11    0.46    0.95    0.51    1.05    0.62    1.28    0.046
   0.095  0.33    0.68    0.02    0.04    0.04    0.08    0.02    0.04
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970401        19970430        11.2
     4.7  0.0182  0.0203  0.84    0.94    0.78    0.87    0.56    0.62    0.44    0.49    0.117
    0.13  0.25    0.28    0.03    0.03    0.04    0.04    0.02    0.02
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970501        19970531        12.5
     4.6  0.0278  0.0347  1.14    1.42    1.06    1.32    0.9     1.12    0.53    0.66    0.19
   0.237  0.32    0.4     0.04    0.05    0.04    0.05    0.02    0.02
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970601        19970630        5.5
     4.3  0.0561  0.0311  2.26    1.25    2.23    1.24    2.05    1.14    0.27    0.16    0.341
   0.189  0.13    0.08    0.08    0.04    0.03    0.02    0.05    0.03
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970701        19970731        1.5
     4.3  0.0529  0.0077  2.55    0.37    2.51    0.37    1.67    0.24    0.27    0.04    0.381
   0.056  0.13    0.02    0.05    0.01    0.02    0       0.02    0
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970801        19970831        8.3
     4.4  0.0359  0.0297  1.52    1.26    1.48    1.22    0.97    0.8     0.28    0.23    0.2
   0.165  0.15    0.12    0.04    0.03    0.02    0.02    0.01    0.01
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19970901        19970930        14.7
     4.2  0.0575  0.0843  2.41    3.53    2.37    3.47    1.45    2.13    0.25    0.37    0.228
   0.334  0.12    0.18    0.02    0.03    0.04    0.06    0.01    0.01
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19971001        19971031        3.7
     4.6  0.024   0.0089  1.04    0.39    0.85    0.32    0.89    0.33    1.33    0.49    0.086
   0.032  0.76    0.28    0.07    0.03    0.1     0.04    0.03    0.01
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19971101        19971130        13.7
     4.7  0.0199  0.0273  0.65    0.89    0.55    0.75    0.71    0.97    0.74    1.01    0.059
   0.081  0.42    0.58    0.03    0.04    0.05    0.07    0.02    0.03
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19971201        19971231        12.3
     4.6  0.0241  0.0295  0.81    0.99    0.52    0.64    0.97    1.19    2.01    2.46    0.04
   0.049  1.11    1.36    0.05    0.06    0.14    0.17    0.05    0.06
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19980101        19980131        23.6
       5  0.0108  0.0254  0.45    1.06    0.33    0.78    0.29    0.68    0.54    1.27    0.023
   0.054  0.3     0.71    0.03    0.07    0.06    0.14    0.02    0.05
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19980201        19980228        9.4
     4.9  0.0114  0.0107  0.49    0.46    0.4     0.38    0.3     0.28    0.66    0.62    0.031
   0.029  0.38    0.36    0.02    0.02    0.05    0.05    0.02    0.02
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19980301        19980331        18.8
     4.9  0.0129  0.0242  0.55    1.03    0.44    0.83    0.43    0.81    0.74    1.39    0.046
   0.086  0.45    0.85    0.04    0.08    0.06    0.11    0.02    0.04
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19980401        19980430        6.9
     4.7  0.0221  0.0152  1.11    0.76    0.95    0.65    0.98    0.67    1.08    0.74    0.162
   0.111  0.63    0.43    0.13    0.09    0.09    0.06    0.04    0.03
MONTH     CAPM86231A      Kejimkujik      44.434  65.206  19980501        19980531        6.1
     4.6  0.0248  0.015   1.13    0.68    1.1     0.67    0.98    0.59    0.26    0.16    0.198
    0.12  0.14    0.08    0.09    0.05    0.03    0.02    0.07    0.04
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MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19980601        19980630        9.6
          .     .     .     .     .        .       .       .       .       .       .       .
          .     .     .     .     .        .       .       .       .
MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19980701        19980731        6.6
        4.4     0.0415 0.0275 1.44  0.95   1.43    0.95    1.11    0.73    0.12    0.08    0.152
        0.101   0.05   0.03   0.04  0.03   0.01    0.01    0.02    0.01
MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19980801        19980831        8.3
        4.4     0.039  0.0325 1.69  1.41   1.65    1.38    0.96    0.8     0.26    0.22    0.19
        0.158   0.14   0.12   0.02  0.02   0.02    0.02    0.02    0.02
MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19980901        19980930        9.9
        4.2     0.0683 0.0678 3.34  3.31   3.32    3.29    1.78    1.77    0.17    0.17    0.419
        0.416   0.06   0.06   0.05  0.05   0.01    0.01    0.02    0.02
MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19981001        19981031        22.3
        5       0.0097 0.0216 0.37  0.82   0.35    0.78    0.2     0.45    0.17    0.38    0.024
        0.053   0.09   0.2    0.01  0.02   0.01    0.02    0.01    0.02
MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19981101        19981130        10.4
        4.5     0.0292 0.0305 1.13  1.18   1.07    1.12    0.92    0.96    0.46    0.48    0.107
        0.112   0.25   0.26   0.03  0.03   0.03    0.03    0.01    0.01
MONTH           CAPM86231A  Kejimkujik     44.434  65.206  19981201        19981231        7.3
        4.4     0.0419 0.0304 1.65  1.2    1.49    1.08    1.61    1.17    1.15    0.83    0.171
        0.124   0.61   0.44   0.06  0.04   0.08    0.06    0.04    0.03
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SUMPR	SITEID		SITENAME		LAT	LON	STARTPER		ENDPER		TOTPRCP	pH
	HPLCN	HPLDP	SO4CN	SO4DP	XSO4CN		XSO4DP		NO3CN	NO3DP	CLDN	CLDP
	NH4CN	NH4DP	NACN	NADP	CACN	CADP	MGCN	MGDP	KCN	KDP		
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19830701		19830930		26.6	4.7
	0.0219	0.0582	0.68	1.81	0.63	1.67	0.38	1.01	0.48	1.28	.	.
	.	.	0.07	0.19	0.02	0.05	0.02	0.05				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19831001		19831231		35.9	4.8
	0.0172	0.0617	0.98	3.51	0.74	2.65	0.51	1.83	1.83	6.56	.	.
	1.17	4.2	0.12	0.43	0.12	0.43	0.05	0.18				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19840101		19840331		41.3	4.9
	0.0142	0.0587	1.11	4.59	0.92	3.8	0.49	2.02	1.45	5.99	.	.
	.	.	0.25	1.03	0.1	0.41	0.04	0.17				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19840401		19840630		38.3	4.7
	0.0188	0.072	1.18	4.52	1.04	3.98	0.59	2.26	1.02	3.91	.	.
	.	.	.	.	0.08	0.31	0.05	0.19				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19840701		19840930		29.3	4.5
	0.033	0.0967	1.6	4.69	1.53	4.48	0.8	2.34	0.65	1.9	0.139	0.407
	.	.	.	.	0.04	0.12	0.03	0.09				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19841001		19841231		22.6	4.6
	0.026	0.0588	1.34	3.03	1.06	2.4	0.73	1.65	1.42	3.21	0.067	0.152
	1.35	3.05	0.08	0.18	0.13	0.29	0.06	0.14				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19850101		19850331		33	4.4
	0.0392	0.1292	1.29	4.25	0.89	2.93	0.83	2.74	1.82	6	0.059	0.195
	1.83	6.03	0.1	0.33	0.19	0.63	0.07	0.23				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19850401		19850630		41.4	4.3
	0.0464	0.192	1.79	7.41	1.73	7.16	0.99	4.1	0.48	1.99	0.19	0.786
	0.25	1.03	0.07	0.29	0.04	0.17	0.02	0.08				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19850701		19850930		22.8	4.4
	0.0397	0.0905	1.75	3.99	1.7	3.88	0.94	2.14	0.31	0.71	0.158	0.36
	0.16	0.36	0.03	0.07	0.02	0.05	0.02	0.05				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19851001		19851231		32.8	4.5
	0.0307	0.1006	1.19	3.9	0.92	3.02	1.03	3.38	1.93	6.33	0.083	0.272
	1.12	3.67	0.07	0.23	0.12	0.39	0.04	0.13				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19860101		19860331		39.9	4.6
	0.0275	0.1097	1.11	4.43	0.84	3.35	0.75	2.99	2.12	8.45	0.089	0.355
	1.13	4.51	0.08	0.32	0.13	0.52	0.05	0.2				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19860401		19860630		31.1	4.3
	0.0523	0.1627	1.9	5.91	1.85	5.75	0.99	3.08	0.32	1	0.209	0.65
	0.17	0.53	0.05	0.16	0.02	0.06	0.02	0.06				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19860701		19860930		42.5	4.3
	0.0458	0.1947	1.48	6.29	1.46	6.21	0.85	3.61	0.19	0.81	0.116	0.493
	0.09	0.38	0.02	0.09	0.02	0.09	0.01	0.04				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19861001		19861231		31.9	4.7
	0.0183	0.0584	0.62	1.98	0.53	1.69	0.49	1.56	0.66	2.11	0.046	0.147
	0.35	1.12	0.02	0.06	0.05	0.16	0.02	0.06				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19870101		19870331		35.2	4.8
	0.017	0.0598	0.57	2.01	0.41	1.44	0.52	1.83	1.16	4.08	0.037	0.13
	0.66	2.32	0.06	0.21	0.08	0.28	0.04	0.14				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19870401		19870630		24.2	4.4
	0.0375	0.0906	1.78	4.3	1.69	4.08	1.13	2.73	0.6	1.45	0.218	0.527
	0.35	0.85	0.07	0.17	0.05	0.12	0.03	0.07				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19870701		19870930		19	4.4
	0.0446	0.0847	2.07	3.93	2.03	3.85	1	1.9	0.3	0.57	0.153	0.29
	0.17	0.32	0.03	0.06	0.02	0.04	0.02	0.04				

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QUART CAPM86231A    Kejimkujik      44.434  65.206  19871001        19871231        45.5    4.7
      0.0203 0.0924 0.75    3.41    0.64    2.91    0.68    3.09    0.77    3.5     0.061   0.278
      0.35   1.59   0.03    0.14    0.04    0.18    0.02    0.09
QUART CAPM86231A    Kejimkujik      44.434  65.206  19880101        19880331        33.8    4.6
      0.0282 0.0952 1.15    3.88    0.87    2.94    1.06    3.64    2.03    6.85    0.096   0.324
      1.1    3.71   0.07    0.24    0.12    0.41    0.05    0.17
QUART CAPM86231A    Kejimkujik      44.434  65.206  19880401        19880630        27.7    4.5
      0.0292 0.0809 1.41    3.9     1.37    3.79    0.76    2.1     0.34    0.94    0.154   0.426
      0.19   0.53   0.06    0.17    0.03    0.08    0.03    0.08
QUART CAPM86231A    Kejimkujik      44.434  65.206  19880701        19880930        31.6    4.5
      0.0335 0.106  1.42    4.49    1.38    4.37    0.76    2.4     0.33    1.04    0.122   0.386
      0.18   0.57   0.04    0.13    0.02    0.06    0.01    0.03
QUART CAPM86231A    Kejimkujik      44.434  65.206  19881001        19881231        49.7    4.8
      0.0165 0.0821 0.67    3.33    0.52    2.59    0.51    2.54    0.98    4.87    0.043   0.214
      0.57   2.84   0.04    0.2     0.06    0.3     0.03    0.15
QUART CAPM86231A    Kejimkujik      44.434  65.206  19890101        19890331        39      4.5
      0.0303 0.1181 1.14    4.44    0.91    3.55    1.1     4.29    1.69    6.59    0.085   0.331
      0.9    3.51   0.07    0.27    0.1     0.39    0.04    0.16
QUART CAPM86231A    Kejimkujik      44.434  65.206  19890401        19890630        31.5    4.3
      0.0489 0.1542 2.29    7.22    2.18    6.88    1.21    3.82    0.73    2.3     0.24    0.757
      0.42   1.32   0.08    0.26    0.05    0.16    0.03    0.09
QUART CAPM86231A    Kejimkujik      44.434  65.206  19890701        19890930        20.7    4.4
      0.0375 0.0776 1.45    3       1.41    2.92    0.86    1.78    0.35    0.72    0.178   0.368
      0.21   0.46   0.04    0.08    0.03    0.06    0.02    0.04
QUART CAPM86231A    Kejimkujik      44.434  65.206  19891001        19891231        39.3    4.5
      0.0315 0.1237 1.31    5.14    0.84    3.3     1.13    4.44    3.16    12.41   0.093   0.365
      1.77   6.95   0.09    0.35    0.22    0.86    0.08    0.31
QUART CAPM86231A    Kejimkujik      44.434  65.206  19900101        19900331        33.6    4.6
      0.0282 0.0948 1.01    3.4     0.93    3.13    0.98    3.29    0.54    1.82    0.114   0.383
      0.3    1.01   0.03    0.1     0.04    0.13    0.02    0.07
QUART CAPM86231A    Kejimkujik      44.434  65.206  19900401        19900630        48.7    4.7
      0.0213 0.1037 0.88    4.28    0.86    4.19    0.54    2.63    0.2     0.97    0.094   0.458
      0.17   0.83   0.03    0.15    0.02    0.1     0.02    0.1
QUART CAPM86231A    Kejimkujik      44.434  65.206  19900701        19900930        28.1    4.6
      0.0255 0.0717 1.04    2.93    0.99    2.78    0.54    1.52    0.32    0.9     0.083   0.233
      0.2    0.56   0.03    0.08    0.03    0.08    0.02    0.06
QUART CAPM86231A    Kejimkujik      44.434  65.206  19901001        19901231        50.4    4.7
      0.0202 0.1017 0.9     4.53    0.72    3.63    0.63    3.17    .       .       0.057   0.287
      0.71   3.58   0.05    0.25    0.08    0.4     .       .
QUART CAPM86231A    Kejimkujik      44.434  65.206  19910101        19910331        38      4.7
      0.022  0.0836 0.94    3.57    0.71    2.7     0.74    2.81    1.53    5.81    0.065   0.247
      0.86   3.27   0.07    0.27    0.11    0.42    0.04    0.15
QUART CAPM86231A    Kejimkujik      44.434  65.206  19910401        19910630        26      4.5
      0.0336 0.0875 1.59    4.14    1.56    4.06    0.89    2.32    0.24    0.62    0.217   0.565
      0.12   0.31   0.06    0.16    0.02    0.05    0.02    0.05
QUART CAPM86231A    Kejimkujik      44.434  65.206  19910701        19910930        38.2    4.6
      0.025  0.0956 1.05    4.01    1.01    3.86    0.67    2.56    0.32    1.22    0.084   0.321
      0.18   0.69   0.03    0.11    0.03    0.11    0.01    0.04
QUART CAPM86231A    Kejimkujik      44.434  65.206  19911001        19911231        41.5    4.6
      0.026  0.1078 1.07    4.44    0.94    3.9     0.8     3.32    0.98    4.07    0.085   0.353
      0.54   2.24   0.04    0.17    0.07    0.29    0.03    0.12
QUART CAPM86231A    Kejimkujik      44.434  65.206  19920101        19920331        44.2    4.8
      0.0179 0.0792 0.86    3.81    0.54    2.39    0.64    2.83    2.31    10.22   0.05    0.221
      1.29   5.71   0.07    0.31    0.16    0.71    0.05    0.22
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QUART CAPM86231A    Kejimkujik  44.434   65.206   19920401          19920630    19.7    4.3
      0.0501 0.0988 2.1   4.14  2.01     3.96     1.32    2.6       0.63  1.24  0.246   0.485
      0.34   0.67   0.05  0.1   0.05     0.1      0.03    0.06
QUART CAPM86231A    Kejimkujik  44.434   65.206   19920701          19920930    19.2    4.5
      0.0304 0.0584 1.12  2.15  1.08     2.07     0.83    1.59      0.27  0.52  0.099   0.19
      0.13   0.25   0.02  0.04  0.02     0.04     0.02    0.04
QUART CAPM86231A    Kejimkujik  44.434   65.206   19921001          19921231    34.5    4.6
      0.0233 0.0804 0.92  3.18  0.69     2.38     0.7     2.42      1.57  5.42  0.058   0.2
      0.89   3.07   0.05  0.17  0.11     0.38     0.04    0.14
QUART CAPM86231A    Kejimkujik  44.434   65.206   19930101          19930331    42.4    4.9
      0.0137 0.0581 0.62  2.63  0.35     1.48     0.46    1.95      1.89  8.01  0.021   0.089
      0.98   4.15   0.06  0.25  0.13     0.55     0.05    0.21
QUART CAPM86231A    Kejimkujik  44.434   65.206   19930401          19930630    31.3    4.5
      0.0311 0.0975 1.16  3.64  1.07     3.35     0.8     2.51      0.67  2.1   0.141   0.442
      0.36   1.13   0.05  0.16  0.06     0.19     0.03    0.09
QUART CAPM86231A    Kejimkujik  44.434   65.206   19930701          19930930    18.8    4.4
      0.0386 0.0727 1.18  2.22  1.14     2.15     0.94    1.77      0.34  0.64  0.153   0.288
      0.17   0.32   0.02  0.04  0.03     0.06     0.02    0.04
QUART CAPM86231A    Kejimkujik  44.434   65.206   19931001          19931231    55.9    4.8
      0.0165 0.0922 0.66  3.69  0.45     2.51     0.52    2.91      1.43  7.99  0.054   0.302
      0.8    4.47   0.05  0.28  0.11     0.63     0.03    0.17
QUART CAPM86231A    Kejimkujik  44.434   65.206   19940101          19940331    53      4.7
      0.018  0.0954 0.61  3.23  0.4      2.12     0.57    3.02      1.54  8.16  0.043   0.228
      0.83   4.4    0.05  0.26  0.1      0.53     0.04    0.21
QUART CAPM86231A    Kejimkujik  44.434   65.206   19940401          19940630    44      4.6
      0.0238 0.1048 1.11  4.89  1.05     4.62     0.71    3.13      0.44  1.94  0.18    0.792
      0.24   1.06   0.06  0.26  0.04     0.18     0.02    0.09
QUART CAPM86231A    Kejimkujik  44.434   65.206   19940701          19940930    26.8    4.5
      0.0334 0.0894 1.4   3.75  1.27     3.4      0.92    2.46      0.85  2.27  0.155   0.415
      0.49   1.31   0.04  0.11  0.06     0.16     0.02    0.05
QUART CAPM86231A    Kejimkujik  44.434   65.206   19941001          19941231    42.1    5
      0.011  0.0463 0.56  2.36  0.38     1.6      0.37    1.56      1.33  5.6   0.037   0.156
      0.74   3.12   0.05  0.21  0.09     0.38     0.03    0.13
QUART CAPM86231A    Kejimkujik  44.434   65.206   19950101          19950331    35.3    4.7
      0.0198 0.07   0.79  2.79  0.53     1.87     0.71    2.51      1.92  6.79  0.063   0.223
      1.05   3.71   0.05  0.18  0.13     0.46     0.04    0.14
QUART CAPM86231A    Kejimkujik  44.434   65.206   19950401          19950630    29.3    4.6
      0.0258 0.0755 1.01  2.96  0.97     2.84     0.79    2.31      0.37  1.08  0.164   0.48
      0.16   0.47   0.05  0.15  0.05     0.15     0.07    0.2
QUART CAPM86231A    Kejimkujik  44.434   65.206   19950701          19950930    17.1    4.5
      0.0337 0.0578 1.18  2.02  1.14     1.95     0.97    1.66      0.31  0.53  0.165   0.283
      0.16   0.27   0.03  0.05  0.02     0.03     0.02    0.03
QUART CAPM86231A    Kejimkujik  44.434   65.206   19951001          19951231    41.5    4.8
      0.0149 0.0618 0.59  2.45  0.42     1.74     0.48    1.99      1.15  4.77  0.047   0.195
      0.65   2.69   0.04  0.17  0.08     0.33     0.03    0.12
QUART CAPM86231A    Kejimkujik  44.434   65.206   19960101          19960331    39.5    4.7
      0.0214 0.0844 0.89  3.51  0.64     2.53     0.79    3.12      1.75  6.91  0.093   0.367
      1.02   4.02   0.07  0.28  0.12     0.47     0.04    0.16
QUART CAPM86231A    Kejimkujik  44.434   65.206   19960401          19960630    37.2    4.8
      0.0168 0.0626 0.93  3.46  0.86     3.2      0.7     2.61      0.52  1.94  0.132   0.492
      0.29   1.08   0.06  0.23  0.04     0.15     0.03    0.11
QUART CAPM86231A    Kejimkujik  44.434   65.206   19960701          19960930    50.8    4.8
      0.0164 0.0833 0.71  3.61  0.65     3.3      0.57    2.89      0.42  2.13  0.085   0.432
      0.24   1.22   0.03  0.15  0.03     0.15     0.02    0.1
```

QUART	CAPM86231A		Kejimkujik		44.434	65.206	19961001		19961231		34.9	4.8
	0.0179	0.0625	0.78	2.72	0.59	2.06	0.65	2.27	1.22	4.26	0.058	0.202
	0.61	2.13	0.04	0.14	0.09	0.31	0.03	0.1				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19970101		19970331		48.1	4.7
	0.0215	0.1034	0.76	3.65	0.6	2.89	0.75	3.61	1.15	5.53	0.069	0.332
	0.58	2.79	0.03	0.14	0.08	0.38	0.03	0.14				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19970401		19970630		29.2	4.5
	0.0295	0.086	1.24	3.62	1.17	3.41	0.99	2.89	0.44	1.28	0.191	0.557
	0.25	0.73	0.04	0.12	0.04	0.12	0.02	0.06				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19970701		19970930		24.4	4.3
	0.0496	0.121	2.1	5.12	2.07	5.05	1.3	3.17	0.26	0.63	0.227	0.554
	0.13	0.32	0.03	0.07	0.03	0.07	0.01	0.02				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19971001		19971231		29.7	4.7
	0.0221	0.0656	0.77	2.29	0.57	1.69	0.84	2.49	1.34	3.98	0.055	0.163
	0.75	2.23	0.04	0.12	0.09	0.27	0.03	0.09				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19980101		19980331		51.7	4.9
	0.0117	0.0605	0.5	2.59	0.38	1.97	0.35	1.81	0.64	3.31	0.033	0.171
	0.37	1.91	0.03	0.16	0.06	0.31	0.02	0.1				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19980401		19980630		22.6	4.6
	0.0236	0.0532	1.08	2.44	0.99	2.23	0.97	2.19	0.65	1.47	0.17	0.384
	0.37	0.83	0.1	0.23	0.06	0.14	0.05	0.11				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19980701		19980930		24.9	4.3
	0.0515	0.1281	2.3	5.72	2.27	5.65	1.33	3.31	0.19	0.47	0.273	0.679
	0.08	0.2	0.04	0.1	0.02	0.05	0.02	0.05				
QUART	CAPM86231A		Kejimkujik		44.434	65.206	19981001		19981231		40	4.7
	0.0202	0.0808	0.78	3.12	0.73	2.92	0.63	2.52	0.42	1.68	0.071	0.284
	0.22	0.88	0.03	0.12	0.03	0.12	0.01	0.04				

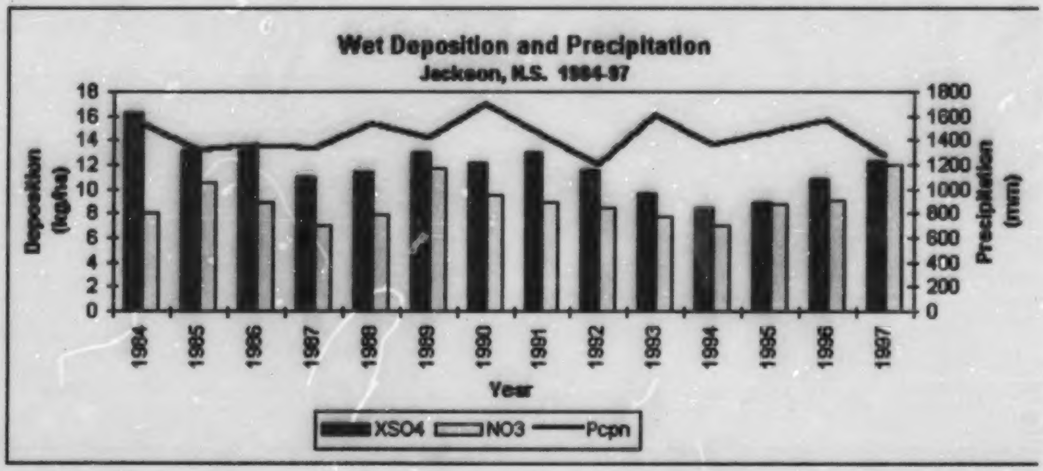
SUMPR	SITEID	SITENAME		LAT	LON	STARTPER		ENDPER		TOTPRCP		pH
	HPLCN	HPLDP	SO4CN	SO4DP	XSO4CN		XSO4DP		NO3CN	NO3DP	CLDN	CLDP
	NH4CN	NH4DP	NACN	NADP	CACN	CADP	MGCN	MGDP	KCN	KDP		
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19840101		19841231		131.5	4.7
	0.0218	0.2867	1.28	16.83	1.12	14.73	0.63	8.29	1.16	15.26	.	.
	.	.	0.22	2.89	0.09	1.18	0.04	0.53				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19850101		19851231		129.9	4.4
	0.0394	0.512	1.51	19.62	1.31	17.02	0.95	12.34	1.16	15.07	0.124	1.611
	0.86	11.17	0.07	0.91	0.09	1.17	0.04	0.52				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19860101		19861231		145.4	4.4
	0.0363	0.5279	1.28	18.61	1.17	17.01	0.78	11.34	0.83	12.07	0.113	1.643
	0.44	6.4	0.04	0.58	0.06	0.87	0.02	0.29				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19870101		19871231		123.8	4.6
	0.0264	0.3269	1.1	13.62	0.99	12.26	0.76	9.41	0.78	9.66	0.097	1.201
	0.41	5.08	0.05	0.62	0.05	0.62	0.03	0.37				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19880101		19881231		142.8	4.6
	0.0258	0.3685	1.11	15.85	0.98	14	0.72	10.28	0.91	13	0.098	1.4
	0.51	7.28	0.05	0.71	0.06	0.86	0.03	0.43				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19890101		19891231		130.5	4.4
	0.0364	0.4749	1.51	19.7	1.28	16.7	1.09	14.22	1.62	21.14	0.141	1.84
	0.9	11.74	0.07	0.91	0.11	1.44	0.04	0.52				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19900101		19901231		160.8	4.6
	0.0234	0.3762	0.95	15.28	0.86	13.83	0.67	10.77	0.55	8.84	0.086	1.383
	0.35	5.63	0.04	0.64	0.04	0.64	0.03	0.48				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19910101		19911231		143.7	4.6
	0.0262	0.3766	1.13	16.24	1.02	14.66	0.77	11.07	0.8	11.5	0.105	1.509
	0.44	6.32	0.05	0.72	0.06	0.86	0.02	0.29				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19920101		19921231		117.7	4.6
	0.0269	0.3166	1.13	13.3	0.92	10.83	0.8	9.42	1.48	17.42	0.094	1.106
	0.83	9.77	0.05	0.59	0.1	1.18	0.04	0.47				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19930101		19931231		148.4	4.7
	0.0218	0.3236	0.82	12.17	0.65	9.65	0.62	9.2	1.26	18.7	0.076	1.128
	0.67	9.94	0.05	0.74	0.09	1.34	0.04	0.59				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19940101		19941231		165.9	4.7
	0.0201	0.3334	0.85	14.1	0.7	11.61	0.61	10.12	1.08	17.92	0.096	1.593
	0.59	9.79	0.05	0.83	0.08	1.33	0.03	0.5				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19950101		19951231		123.2	4.7
	0.0215	0.2649	0.83	10.23	0.68	8.38	0.69	8.5	1.07	13.18	0.095	1.171
	0.58	7.15	0.04	0.49	0.08	0.99	0.04	0.49				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19960101		19961231		162.4	4.7
	0.018	0.2923	0.82	13.31	0.68	11.04	0.67	10.88	0.94	15.26	0.091	1.478
	0.52	8.44	0.05	0.81	0.07	1.14	0.03	0.49				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19970101		19971231		131.3	4.6
	0.0285	0.3743	1.11	14.58	0.98	12.87	0.92	12.08	0.87	11.42	0.121	1.589
	0.46	6.04	0.04	0.53	0.07	0.92	0.02	0.26				
YEAR	CAPM86231A		Kejimkujik		44.434	65.206	19980101		19981231		139.2	4.6
	0.0231	0.3214	0.99	13.78	0.91	12.66	0.69	9.6	0.49	6.82	0.106	1.475
	0.27	3.76	0.04	0.56	0.04	0.56	0.02	0.28				

Jackson, Nova Scotia

CAPM86341A Jackson 08/02/83 / /

The Jackson site is located at the Cobequid Fish Culture Station 8 km east of Collingwood in rural northwest Nova Scotia. The site itself is in a flat, grassy clearing and measures approximately 100 x 100 metres. It is surrounded by mixed forest to the north, east and west. The site is open to the south, facing the fish hatchery. The surrounding topography is hilly and covered by mixed forest. The Cobequid Mountains, with elevations up to 200 metres above that of the site, are just south of the site. There are two moderately travelled roads, one paved and one gravel, located 250 metres south of the site. Cultivated blueberry fields are located 500 metres northeast and 500 metres southwest of the site. Maccan, a coal-fired 25 MW power plant that is only used during peak energy demand periods, is located 35 km northwest of the site. There are no other agricultural, industrial or urban activities near the site.

Graph



Use the link below to download the data.
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Monthly Data

- Data as Excel File
- Data as Dbase File

Quarterly Data

- Data as Excel File
- Data as Dbase File

Yearly Data

- Data as Excel File
- Data as Dbase File

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SUMPR SITEID SITENAME    LAT     LON     STARTPER   ENDPER        TOTPRCP  pH
       HPLCN  HPLDP  SO4CN  SO4DP  XSO4CN      XSO4DP      NO3CN  NO3DP  CLDN   CLDP
       NH4CN  NH4DP  NACN   NADP   CACN   CADP   MGCN   MGDP   KCN    KDP
MONTH         CAPM86341A  Jackson 45.593  63.842  19830801     19830831      15.4   4.7
       0.0203 0.0313 1.25   1.93   1.18   1.82   0.56   0.86   0.35   0.54   0.145  0.223
       .      .      0.15   0.23   0.03   0.05   0.16   0.25
MONTH         CAPM86341A  Jackson 45.593  63.842  19830901     19830930      6.7    .
       .      .      .      .      .      .      0.36   0.24   .      .      .      .
       .      .      0.11   0.07   0.05   0.03   0.07   0.05
MONTH         CAPM86341A  Jackson 45.593  63.842  19831001     19831031      6.9    .
       .      .      .      .      .      .      0.78   0.53   3.5    2.4    .      .
       2.09   1.43   0.28   0.19   0.26   0.18   0.11   0.08
MONTH         CAPM86341A  Jackson 45.593  63.842  19831101     19831130      15.8   4.8
       0.0177 0.0279 0.87   1.37   0.68   1.07   0.51   0.8    1.96   3.09   .      .
       .      .      0.11   0.17   0.09   0.14   0.05   0.08
MONTH         CAPM86341A  Jackson 45.593  63.842  19831201     19831231      18.3   4.5
       0.031  0.0568 1.02   1.87   0.82   1.5    0.67   1.23   1.93   3.54   .      .
       .      .      0.08   0.15   0.1    0.18   0.04   0.07
MONTH         CAPM86341A  Jackson 45.593  63.842  19840101     19840131      14.5   4.5
       0.0344 0.0498 1.15   1.67   1.09   1.58   1.09   1.58   0.55   0.8    0.082  0.119
       .      .      0.04   0.06   0.03   0.04   0.02   0.03
MONTH         CAPM86341A  Jackson 45.593  63.842  19840201     19840229      11.7   4.8
       0.0146 0.0171 0.83   0.97   0.73   0.85   0.28   0.33   .      .      .      .
       .      .      0.11   0.13   0.05   0.06   0.04   0.05
MONTH         CAPM86341A  Jackson 45.593  63.842  19840301     19840331      21.3   5.1
       0.0078 0.0166 1.19   2.53   0.98   2.09   0.27   0.58   1.52   3.24   .      .
       0.92   1.96   0.43   0.92   0.16   0.34   0.04   0.09
MONTH         CAPM86341A  Jackson 45.593  63.842  19840401     19840430      22.6   5.2
       0.0057 0.0129 0.86   1.94   0.63   1.42   0.17   0.38   1.6    3.61   .      .
       1.11   2.51   0.23   0.52   0.12   0.27   0.06   0.14
MONTH         CAPM86341A  Jackson 45.593  63.842  19840501     19840531      16.1   4.7
       0.0183 0.0295 1.55   2.5    1.44   2.32   0.63   1.01   0.76   1.22   0.163  0.263
       .      .      0.28   0.45   0.08   0.13   0.04   0.06
MONTH         CAPM86341A  Jackson 45.593  63.842  19840601     19840630      9      4.7
       0.0186 0.0168 1.03   0.93   0.87   0.78   0.42   0.38   1.03   0.93   .      .
       .      .      .      .      0.08   0.07   0.07   0.06
MONTH         CAPM86341A  Jackson 45.593  63.842  19840701     19840731      5.7    4.2
       0.0588 0.0336 3.09   1.76   2.99   1.71   1.38   0.79   .      .      0.317  0.181
       .      .      .      .      0.06   0.03   0.05   0.03
MONTH         CAPM86341A  Jackson 45.593  63.842  19840801     19840831      21.7   4.7
       0.0185 0.0402 0.67   1.46   0.64   1.39   0.32   0.7    .      .      .      .
       .      .      .      .      0.01   0.02   0.02   0.04
MONTH         CAPM86341A  Jackson 45.593  63.842  19840901     19840930      11.7   4.8
       0.0173 0.0202 0.97   1.13   0.92   1.08   0.26   0.3    0.36   0.42   0.079  0.092
       .      .      .      .      0.02   0.02   0.02   0.02
MONTH         CAPM86341A  Jackson 45.593  63.842  19841001     19841031      6.4    4.4
       0.0427 0.0273 1.87   1.19   1.79   1.14   1.44   0.92   .      .      .      .
       .      .      0.09   0.06   0.04   0.03   0.05   0.03
MONTH         CAPM86341A  Jackson 45.593  63.842  19841101     19841130      3.6    4.5
       0.0329 0.0117 1.73   0.61   1.47   0.52   0.97   0.34   1.5    0.53   0.097  0.034
       1.24   0.44   0.15   0.05   0.13   0.05   0.05   0.02
MONTH         CAPM86341A  Jackson 45.593  63.842  19841201     19841231      10.1   4.6
       0.0281 0.0284 1.16   1.17   1.04   1.05   0.85   0.86   0.98   0.99   0.051  0.052
       .      .      0.05   0.05   0.06   0.06   0.02   0.02
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MONTH          CAPM86341A   Jackson 45.593  63.842  19850101          19850131          9.4     4.8
         0.0175 0.0165 1.23  1.16   0.93    0.87    1.59     1.49     0.89     0.84     0.224   0.211
         1.22   1.15   0.09  0.08   0.12    0.11    0.06     0.06
MONTH          CAPM86341A   Jackson 45.593  63.842  19850201          19850228          10.6    4.6
         0.0269 0.0286 0.98  1.04   0.92    0.98    0.71     0.75     0.4      0.42     0.06    0.064
         0.26   0.28   0.05  0.05   0.03    0.03    0.02     0.02
MONTH          CAPM86341A   Jackson 45.593  63.842  19850301          19850331          9.9     4.4
         0.0433 0.0427 0.97  0.96   0.91    0.9     1.39     1.37     0.45     0.44     0.057   0.056
         0.26   0.26   0.17  0.17   0.04    0.04    0.02     0.02
MONTH          CAPM86341A   Jackson 45.593  63.842  19850401          19850430          6.4     4.1
         0.0722 0.0461 2.17  1.39   2.07    1.32    1.45     0.93     0.77     0.49     0.225   0.144
         0.42   0.27   0.11  0.07   0.06    0.04    0.03     0.02
MONTH          CAPM86341A   Jackson 45.593  63.842  19850501          19850531          12.2    4.4
         0.0412 0.0502 1.75  2.13   1.73    2.11    1.03     1.55     0.23     0.28     0.191   0.233
         0.1    0.12   0.06  0.07   0.02    0.03    0.01     0.02
MONTH          CAPM86341A   Jackson 45.593  63.842  19850601          19850630          30.3    4.7
         0.0207 0.0628 0.91  2.76   0.88    2.67    0.44     1.33     0.27     0.82     0.065   0.197
         0.14   0.42   0.02  0.06   0.02    0.06    0.01     0.03
MONTH          CAPM86341A   Jackson 45.593  63.842  19850701          19850731          8.2     4.4
         0.0406 0.0332 1.51  1.24   1.51    1.24    1.06     0.87     0.12     0.1      0.161   0.132
         0.02   0.02   0.04  0.03   0.01    0.01    0.01     0.01
MONTH          CAPM86341A   Jackson 45.593  63.842  19850801          19850831          15.3    4.9
         0.0137 0.0209 0.46  0.7    0.43    0.66    0.28     0.43     0.24     0.37     0.036   0.055
         0.12   0.18   0.01  0.02   0.02    0.03    0.01     0.02
MONTH          CAPM86341A   Jackson 45.593  63.842  19850901          19850930          2.1     .
         .      .      .     .      .       .       .        .        .        .        .       .
         .      .      .     .      .       .       .        .
MONTH          CAPM86341A   Jackson 45.593  63.842  19851001          19851031          7       4.6
         0.0237 0.0165 1.03  0.72   0.97    0.68    0.7      0.49     0.45     0.31     0.109   0.076
         0.23   0.16   0.03  0.02   0.03    0.02    0.01     0.01
MONTH          CAPM86341A   Jackson 45.593  63.842  19851101          19851130          10.8    4.7
         0.0208 0.0225 1.01  1.09   0.75    0.81    0.54     0.58     1.91     2.07     0.059   0.064
         1.03   1.11   0.06  0.06   0.12    0.13    0.04     0.04
MONTH          CAPM86341A   Jackson 45.593  63.842  19851201          19851231          9.8     4.6
         0.0259 0.0253 0.83  0.81   0.72    0.7     0.93     0.91     0.82     0.8      0.068   0.066
         0.44   0.43   0.04  0.04   0.05    0.05    0.02     0.02
MONTH          CAPM86341A   Jackson 45.593  63.842  19860101          19860131          15.5    4.7
         0.018  0.0279 0.65  1.01   0.54    0.84    0.6      0.93     0.82     1.27     0.06    0.093
         0.52   0.81   0.04  0.06   0.06    0.09    0.02     0.03
MONTH          CAPM86341A   Jackson 45.593  63.842  19860201          19860228          11.2    5
         0.0113 0.0126 0.28  0.31   0.24    0.27    0.24     0.27     0.9      1        0.02    0.022
         0.14   0.16   0.01  0.01   0.02    0.02    0.01     0.01
MONTH          CAPM86341A   Jackson 45.593  63.842  19860301          19860331          16.8    4.5
         0.0296 0.0497 1.23  2.07   1.17    1.96    0.68     1.14     0.51     0.86     0.114   0.191
         0.28   0.47   0.05  0.08   0.03    0.05    0.02     0.03
MONTH          CAPM86341A   Jackson 45.593  63.842  19860401          19860430          13.5    4.6
         0.0263 0.0354 0.72  0.97   0.68    0.92    0.4      0.54     0.26     0.35     0.075   0.101
         0.15   0.2    0.01  0.01   0.02    0.03    0.01     0.01
MONTH          CAPM86341A   Jackson 45.593  63.842  19860501          19860531          4.3     4.3
         0.0504 0.0218 1.63  0.71   1.59    0.69    1.07     0.46     0.25     0.11     0.222   0.096
         0.08   0.03   0.07  0.03   0.02    0.01    0.02     0.01
MONTH          CAPM86341A   Jackson 45.593  63.842  19860601          19860630          9       4.3
         0.0506 0.0455 1.71  1.54   1.69    1.52    0.82     0.74     0.15     0.13     0.192   0.173
         0.06   0.05   0.04  0.04   0.01    0.01    0.01     0.01
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MONTH          CAPM86341A   Jackson 45.593   63.842   19860701            19860731         14.3     4.6
        0.0272 0.039    0.78     1.12    0.77     1.1      0.53     0.76     0.08     0.11     0.068    0.097
        0.03   0.04     0.02     0.03    0.01     0.01     0.01     0.01
MONTH          CAPM86341A   Jackson 45.593   63.842   19860801            19860831         8.8      4.2
        0.0693 0.061    2.06     1.81    2.02     1.78     1.18     1.04     0.31     0.27     0.218    0.192
        0.15   0.13     0.03     0.03    0.02     0.02     0.01     0.01
MONTH          CAPM86341A   Jackson 45.593   63.842   19860901            19860930         9.4      4.4
        0.0447 0.0419   1.63     1.53    1.58     1.48     0.85     0.8      0.29     0.27     0.146    0.137
        0.16   0.15     0.02     0.02    0.02     0.02     0.01     0.01
MONTH          CAPM86341A   Jackson 45.593   63.842   19861001            19861031         6.7      4.6
        0.0269 0.018    1.19     0.8     1.05     0.7      0.59     0.4      0.95     0.64     0.139    0.093
        0.55   0.37     0.06     0.04    0.09     0.06     0.04     0.03
MONTH          CAPM86341A   Jackson 45.593   63.842   19861101            19861130         14.4     4.5
        0.0287 0.0414   1.01     1.46    0.82     1.18     0.86     1.24     1.26     1.82     0.072    0.104
        0.62   0.89     0.04     0.06    0.09     0.13     0.03     0.04
MONTH          CAPM86341A   Jackson 45.593   63.842   19861201            19861231         11.8     .
        .      .        .        .       .        .        .        .        .        .        .        .

        .      .        .        .       .        .        .        .
MONTH          CAPM86341A   Jackson 45.593   63.842   19870101            19870131         15       4.8
        0.0177 0.0265   0.5      0.75    0.43     0.64     0.58     0.87     0.52     0.78     0.039    0.058
        0.33   0.49     0.03     0.04    0.04     0.06     0.02     0.03
MONTH          CAPM86341A   Jackson 45.593   63.842   19870201            19870228         7.2      4.9
        0.0122 0.0087   0.38     0.27    0.29     0.21     0.27     0.19     0.58     0.41     0.026    0.019
        0.32   0.23     0.03     0.02    0.04     0.03     0.02     0.01
MONTH          CAPM86341A   Jackson 45.593   63.842   19870301            19870331         10.8     4.8
        0.0145 0.0157   0.67     0.73    0.62     0.67     0.22     0.24     0.34     0.37     0.083    0.09
        0.22   0.24     0.02     0.02    0.03     0.03     0.02     0.02
MONTH          CAPM86341A   Jackson 45.593   63.842   19870401            19870430         9        4.7
        0.0203 0.0182   0.87     0.78    0.83     0.74     0.48     0.43     0.28     0.25     0.076    0.068
        0.16   0.14     0.05     0.04    0.02     0.02     0.02     0.02
MONTH          CAPM86341A   Jackson 45.593   63.842   19870501            19870531         7.9      4.3
        0.0564 0.0444   3.18     2.5     3.12     2.46     1.62     1.27     0.38     0.3      0.42     0.331
        0.22   0.17     0.14     0.11    0.04     0.03     0.03     0.02
MONTH          CAPM86341A   Jackson 45.593   63.842   19870601            19870630         7.9      4.4
        0.0368 0.029    1.51     1.19    1.49     1.17     0.87     0.69     0.16     0.13     0.171    0.135
        0.09   0.07     0.03     0.02    0.01     0.01     0.02     0.02
MONTH          CAPM86341A   Jackson 45.593   63.842   19870701            19870731         1.6      4.4
        0.0443 0.0072   2.34     0.38    2.29     0.37     1.3      0.21     0.31     0.05     0.296    0.048
        0.17   0.03     0.09     0.01    0.03     0        0.02     0
MONTH          CAPM86341A   Jackson 45.593   63.842   19870801            19870831         15.4     4.7
        0.0216 0.0334   0.88     1.36    0.87     1.34     0.45     0.69     0.06     0.09     0.082    0.127
        0.03   0.05     0.02     0.03    0.01     0.02     0.01     0.02
MONTH          CAPM86341A   Jackson 45.593   63.842   19870901            19870930         13       4.9
        0.0142 0.0184   0.64     0.83    0.57     0.74     0.33     0.43     0.46     0.6      0.04     0.052
        0.27   0.35     0.02     0.03    0.03     0.04     0.01     0.01
MONTH          CAPM86341A   Jackson 45.593   63.842   19871001            19871031         14       4.9
        0.0141 0.0197   0.65     0.91    0.57     0.8      0.36     0.5      0.57     0.8      0.059    0.082
        0.33   0.46     0.03     0.04    0.04     0.06     0.02     0.03
MONTH          CAPM86341A   Jackson 45.593   63.842   19871101            19871130         16.5     4.6
        0.024  0.0396   0.97     1.6     0.86     1.42     0.71     1.17     0.73     1.2      0.121    0.199
        0.41   0.68     0.04     0.07    0.05     0.08     0.02     0.03
MONTH          CAPM86341A   Jackson 45.593   63.842   19871201            19871231         16.5     4.9
        0.0123 0.0191   0.57     0.88    0.34     0.53     0.29     0.45     1.66     2.57     0.022    0.034
        0.94   1.46     0.06     0.09    0.11     0.17     0.04     0.06
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MONTH               CAPM86341A          Jackson   45.593    63.842    19880101            19880131            9         4.7
          0.0192    0.0173    0.63      0.57      0.58      0.52      0.61      0.55      0.31      0.28      0.064     0.058
          0.19      0.17      0.04      0.04      0.02      0.02      0.01      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19880201            19880229            18.6      4.8
          0.0175    0.0325    0.58      1.08      0.54      1         0.45      0.84      0.28      0.52      0.038     0.071
          0.16      0.3       0.02      0.04      0.02      0.04      0.01      0.02
MONTH               CAPM86341A          Jackson   45.593    63.842    19880301            19880331            6.8       4.6
          0.0269    0.0183    0.86      0.58      0.79      0.54      0.81      0.55      0.48      0.33      0.149     0.105
          0.26      0.18      0.07      0.05      0.04      0.03      0.02      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19880401            19880430            22.1      4.8
          0.0164    0.0362    1.06      2.34      0.81      1.79      0.34      0.75      1.77      3.91      0.093     0.205
          1         2.21      0.07      0.15      0.14      0.31      0.04      0.09
MONTH               CAPM86341A          Jackson   45.593    63.842    19880501            19880531            11.4      4.6
          0.0229    0.0262    1.29      1.48      1.13      1.29      0.47      0.54      1.15      1.32      0.168     0.192
          0.65      0.74      0.05      0.06      0.08      0.09      0.04      0.05
MONTH               CAPM86341A          Jackson   45.593    63.842    19880601            19880630            9.1       4.6
          0.0271    0.0246    1.57      1.43      1.45      1.32      0.72      0.65      0.92      0.84      0.173     0.157
          0.51      0.46      0.14      0.13      0.07      0.06      0.04      0.04
MONTH               CAPM86341A          Jackson   45.593    63.842    19880701            19880731            13        4.7
          0.021     0.0273    0.89      1.16      0.88      1.14      0.62      0.81      0.06      0.08      0.102     0.132
          0.02      0.03      0.03      0.04      0.01      0.01      0.01      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19880801            19880831            9.5       4.7
          0.0193    0.0184    0.94      0.9       0.91      0.87      0.53      0.51      0.24      0.23      0.107     0.102
          0.15      0.14      0.07      0.07      0.02      0.02      0.01      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19880901            19880930            6.1       4.7
          0.0193    0.0118    0.86      0.52      0.82      0.5       0.38      0.23      0.33      0.2       0.081     0.049
          0.19      0.12      0.03      0.02      0.02      0.01      0.01      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19881001            19881031            24.2      .
          .         .         .         .         .         .         .         .         .         .         .         .
          .         .         .         .         .         .         .         .
MONTH               CAPM86341A          Jackson   45.593    63.842    19881101            19881130            18        5
          0.0103    0.0186    0.39      0.7       0.33      0.59      0.3       0.54      0.45      0.81      0.024     0.043
          0.26      0.47      0.02      0.04      0.03      0.05      0.01      0.02
MONTH               CAPM86341A          Jackson   45.593    63.842    19881201            19881231            5.8       4.5
          0.0322    0.0201    0.78      0.49      0.75      0.47      1.37      0.85      0.3       0.17      0.082     0.051
          0.15      0.09      0.03      0.02      0.02      0.01      0.02      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19890101            19890131            8.6       4.5
          0.0309    0.0265    0.87      0.74      0.82      0.7       1.34      1.15      0.34      0.29      0.091     0.078
          0.19      0.16      0.04      0.03      0.02      0.02      0.01      0.01
MONTH               CAPM86341A          Jackson   45.593    63.842    19890201            19890228            19        4.7
          0.0224    0.0426    0.68      1.29      0.63      1.2       0.79      1.5       0.4       0.76      0.054     0.103
          0.23      0.44      0.02      0.04      0.03      0.06      0.02      0.04
MONTH               CAPM86341A          Jackson   45.593    63.842    19890301            19890331            15.6      4.6
          0.0256    0.04      0.92      1.44      0.9       1.41      0.89      1.39      0.17      0.27      0.096     0.15
          0.13      0.2       0.09      0.14      0.02      0.03      0.02      0.03
MONTH               CAPM86341A          Jackson   45.593    63.842    19890401            19890430            8.1       4.5
          0.0356    0.0312    1.54      1.35      1.45      1.27      0.98      0.86      0.61      0.5       0.137     0.12
          0.38      0.31      0.05      0.04      0.04      0.03      0.02      0.02
MONTH               CAPM86341A          Jackson   45.593    63.842    19890501            19890531            11.7      4.6
          0.0255    0.0298    1.18      1.38      1.1       1.28      0.69      0.81      0.52      0.61      0.138     0.161
          0.3       0.35      0.06      0.07      0.04      0.05      0.02      0.02
MONTH               CAPM86341A          Jackson   45.593    63.842    19890601            19890630            11.8      4.6
          0.0265    0.0312    0.99      1.17      0.97      1.14      0.65      0.77      0.11      0.13      0.088     0.104
          0.05      0.06      0.03      0.04      0.01      0.01      0.01      0.01
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MONTH     CAPM86341A  Jackson 45.593  63.842  19890701      19890731      9.1     4.6
     0.0259  0.0236  1.01  0.92  1     0.91  0.59  0.54  0.11  0.1   0.144  0.131
     0.06    0.05    0.03  0.03  0.01  0.01  0.02  0.02
MONTH     CAPM86341A  Jackson 45.593  63.842  19890801      19890831      5.3     4.6
     0.024   0.0127  0.89  0.47  0.87  0.46  0.74  0.39  0.2   0.11  0.1    0.053
     0.1     0.05    0.03  0.02  0.01  0.01  0.02  0.01
MONTH     CAPM86341A  Jackson 45.593  63.842  19890901      19890930      13.6    4.6
     0.0257  0.0349  1.02  1.38  0.98  1.33  0.63  0.85  0.28  0.38  0.079  0.107
     0.16    0.22    0.03  0.04  0.02  0.03  0.01  0.01
MONTH     CAPM86341A  Jackson 45.593  63.842  19891001      19891031      8.8     4.9
     0.0137  0.012   0.84  0.74  0.75  0.66  0.55  0.48  0.63  0.55  0.071  0.062
     0.39    0.34    0.05  0.04  0.05  0.04  0.03  0.03
MONTH     CAPM86341A  Jackson 45.593  63.842  19891101      19891130      22.2    4.5
     0.0339  0.0754  1.14  2.54  1.07  2.38  1.03  2.29  0.52  1.16  0.105  0.234
     0.32    0.75    0.04  0.09  0.04  0.09  0.02  0.04
MONTH     CAPM86341A  Jackson 45.593  63.842  19891201      19891231      8.2     4.6
     0.0227  0.0186  0.75  0.62  0.66  0.54  0.82  0.67  0.59  0.48  0.052  0.043
     0.35    0.29    0.02  0.02  0.03  0.02  0.02  0.02
MONTH     CAPM86341A  Jackson 45.593  63.842  19900101      19900131      11.4    4.7
     0.0211  0.0239  0.66  0.75  0.62  0.7   0.78  0.89  0.29  0.33  0.115  0.131
     0.15    0.17    0.04  0.05  0.02  0.02  0.01  0.01
MONTH     CAPM86341A  Jackson 45.593  63.842  19900201      19900228      11.8    4.6
     0.0284  0.0336  0.77  0.91  0.73  0.86  0.97  1.15  0.25  0.3   0.409  0.484
     0.17    0.2     0.03  0.04  0.02  0.02  0.02  0.02
MONTH     CAPM86341A  Jackson 45.593  63.842  19900301      19900331      8.6     4.5
     0.029   0.0249  1.5   1.29  1.4   1.2   0.93  0.8   0.65  0.56  0.173  0.148
     0.37    0.32    0.06  0.05  0.05  0.04  0.03  0.03
MONTH     CAPM86341A  Jackson 45.593  63.842  19900401      19900430      17.2    4.7
     0.0222  0.0382  0.94  1.62  0.91  1.56  0.64  1.1   0.22  0.38  0.099  0.17
     0.12    0.21    0.04  0.07  0.02  0.03  0.01  0.02
MONTH     CAPM86341A  Jackson 45.593  63.842  19900501      19900531      24.1    5
     0.0113  0.0272  0.5   1.2   0.45  1.08  0.22  0.53  0.29  0.7   0.036  0.087
     0.16    0.39    0.02  0.05  0.02  0.05  0.01  0.02
MONTH     CAPM86341A  Jackson 45.593  63.842  19900601      19900630      4       4.6
     0.0258  0.0104  1.01  0.41  0.98  0.39  0.85  0.34  0.22  0.09  0.116  0.047
     0.12    0.05    0.03  0.01  0.02  0.01  0.02  0.01
MONTH     CAPM86341A  Jackson 45.593  63.842  19900701      19900731      6.2     4.8
     0.0168  0.0104  0.66  0.41  0.63  0.39  0.45  0.28  0.27  0.17  0.019  0.012
     0.16    0.1     0.03  0.02  0.02  0.01  0.01  0.01
MONTH     CAPM86341A  Jackson 45.593  63.842  19900801      19900831      11.9    4.9
     0.0116  0.0138  0.51  0.61  0.48  0.57  0.23  0.27  0.19  0.23  0.041  0.049
     0.12    0.14    0.03  0.04  0.02  0.02  0.03  0.04
MONTH     CAPM86341A  Jackson 45.593  63.842  19900901      19900930      10.9    .
     .       .       .     .     .     .     .     .     .     .     .      .
     .       .       .     .     .     .     .     .
MONTH     CAPM86341A  Jackson 45.593  63.842  19901001      19901031      21.3    4.8
     0.0146  0.031   0.8   1.7   0.55  1.17  0.35  0.74  1.9   4.04  0.055  0.117
     0.99    2.1     0.05  0.11  0.12  0.26  0.04  0.09
MONTH     CAPM86341A  Jackson 45.593  63.842  19901101      19901130      16.6    4.8
     0.0156  0.0258  0.71  1.18  0.62  1.03  0.58  0.96  0.66  1.09  0.077  0.128
     0.35    0.58    0.04  0.07  0.05  0.08  0.02  0.03
MONTH     CAPM86341A  Jackson 45.593  63.842  19901201      19901231      25.8    4.7
     0.0201  0.0518  0.74  1.91  0.69  1.78  0.59  1.52  0.4   1.03  0.057  0.147
     0.23    0.59    0.02  0.05  0.03  0.08  0.01  0.03
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MONTH           CAPM86341A    Jackson 45.593   63.842   19910101          19910131         14.2     4.7
        0.0181  0.0258  0.62  0.88    0.58     0.83     0.52     0.74     0.27     0.38    0.05     0.071
        0.16    0.23    0.04  0.06    0.02     0.03     0.01     0.01
MONTH           CAPM86341A    Jackson 45.593   63.842   19910201          19910228         4.6      4.3
        0.0486  0.0242  1.62  0.81    1.52     0.76     2.49     1.14     0.8      0.37    0.209    0.096
        0.42    0.19    0.18  0.08    0.06     0.03     0.03     0.01
MONTH           CAPM86341A    Jackson 45.593   63.842   19910301          19910331         20       5
        0.0093  0.0186  0.49  0.98    0.42     0.84     0.26     0.52     0.46     0.92    0.043    0.086
        0.26    0.52    0.05  0.1     0.03     0.06     0.02     0.04
MONTH           CAPM86341A    Jackson 45.593   63.842   19910401          19910430         7.6      4.6
        0.0252  0.0191  1.25  0.95    1.23     0.93     0.79     0.6      0.17     0.13    0.171    0.129
        0.1     0.08    0.1   0.08    0.02     0.02     0.02     0.02
MONTH           CAPM86341A    Jackson 45.593   63.842   19910501          19910531         9.9      4.5
        0.0335  0.033   1.82  1.79    1.78     1.75     0.86     0.85     0.26     0.26    0.271    0.267
        0.13    0.13    0.1   0.1     0.03     0.03     0.03     0.03
MONTH           CAPM86341A    Jackson 45.593   63.842   19910601          19910630         3.9      4.5
        0.033   0.0127  2.21  0.85    2.07     0.8      0.83     0.32     0.99     0.38    0.289    0.112
        0.3     0.12    0.17  0.07    0.06     0.02     0.07     0.03
MONTH           CAPM86341A    Jackson 45.593   63.842   19910701          19910731         6.9      4.5
        0.0296  0.0203  0.97  0.67    0.96     0.66     0.86     0.59     0.07     0.05    0.094    0.065
        0.02    0.01    0.03  0.02    0.01     0.01     0.01     0.01
MONTH           CAPM86341A    Jackson 45.593   63.842   19910801          19910831         22.8     4.7
        0.02    0.0455  0.96  2.19    0.93     2.12     0.46     1.05     0.22     0.5     0.088    0.2
        0.13    0.3     0.02  0.05    0.02     0.05     0.01     0.02
MONTH           CAPM86341A    Jackson 45.593   63.842   19910901          19910930         16.1     4.7
        0.0187  0.0301  0.93  1.5     0.84     1.35     0.41     0.66     0.59     0.95    0.063    0.101
        0.34    0.55    0.04  0.06    0.04     0.06     0.03     0.05
MONTH           CAPM86341A    Jackson 45.593   63.842   19911001          19911031         12.5     4.6
        0.0269  0.0335  1.54  1.92    1.16     1.45     0.64     0.8      2.85     3.55    0.097    0.121
        1.51    1.88    0.09  0.11    0.19     0.24     0.06     0.07
MONTH           CAPM86341A    Jackson 45.593   63.842   19911101          19911130         16.5     4.9
        0.0132  0.0218  0.55  0.91    0.48     0.79     0.3      0.5      0.45     0.74    0.041    0.068
        0.21    0.35    0.01  0.02    0.03     0.05     0.01     0.02
MONTH           CAPM86341A    Jackson 45.593   63.842   19911201          19911231         10.4     4.5
        0.033   0.0345  0.96  1       0.84     0.88     1.23     1.28     0.97     1.01    0.067    0.07
        0.49    0.51    0.03  0.03    0.06     0.06     0.02     0.02
MONTH           CAPM86341A    Jackson 45.593   63.842   19920101          19920131         12.9     5
        0.0107  0.0138  0.36  0.46    0.29     0.37     0.28     0.36     0.51     0.66    0.018    0.023
        0.28    0.36    0.02  0.03    0.04     0.05     0.01     0.01
MONTH           CAPM86341A    Jackson 45.593   63.842   19920201          19920229         20.4     4.7
        0.0222  0.0453  0.69  1.41    0.59     1.2      0.79     1.61     0.76     1.55    0.058    0.118
        0.43    0.88    0.03  0.06    0.06     0.12     0.02     0.04
MONTH           CAPM86341A    Jackson 45.593   63.842   19920301          19920331         10.6     5
        0.0098  0.0104  0.5   0.53    0.39     0.41     0.32     0.34     0.74     0.79    0.036    0.038
        0.42    0.45    0.04  0.04    0.06     0.06     0.02     0.02
MONTH           CAPM86341A    Jackson 45.593   63.842   19920401          19920430         4.9      4.4
        0.0418  0.0206  1.8   0.89    1.72     0.85     1.12     0.57     0.56     0.28    0.16     0.081
        0.25    0.12    0.04  0.02    0.04     0.02     0.02     0.01
MONTH           CAPM86341A    Jackson 45.593   63.842   19920501          19920531         5.6      4.3
        0.0511  0.0285  2.5   1.39    2.46     1.37     1.27     0.71     0.3      0.17    0.277    0.154
        0.16    0.09    0.06  0.03    0.03     0.02     0.01     0.01
MONTH           CAPM86341A    Jackson 45.593   63.842   19920601          19920630         8.4      4.2
        0.0573  0.0481  2.39  2.01    2.34     1.96     1.25     1.05     0.4      0.34    0.254    0.213
        0.2     0.17    0.06  0.05    0.04     0.03     0.02     0.02
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MO[illegible]       CAPM86341A    Jackson 45.593  63.842  19920701        19920731        6.5     4.2
        0.0[illegible]37  0.0382  2.5     1.63    2.46    1.6     1.56    1.02    0.36    0.23    0.169   0.11
        0.16    0.1     0.03    0.02    0.02    0.01    0.02    0.01
MONTH           CAPM86341A    Jackson 45.593  63.842  19920801        19920831        6.3     4.6
        0.0245  0.0155  1.11    0.7     1.08    0.68    0.72    0.46    0.26    0.16    0.113   0.072
        0.12    0.08    0.02    0.01    0.02    0.01    0.02    0.01
MONTH           CAPM86341A    Jackson 45.593  63.842  19920901        19920930        2.9     4.6
        0.0271  0.0079  0.97    0.28    0.92    0.27    0.66    0.19    0.41    0.12    0.074   0.022
        0.19    0.06    0.03    0.01    0.03    0.01    0.01    0
MONTH           CAPM86341A    Jackson 45.593  63.842  19921001        19921031        12.3    4.6
        0.0239  0.0293  1.08    1.33    0.96    1.18    0.56    0.69    0.81    0.99    0.092   0.113
        0.46    0.56    0.05    0.06    0.06    0.07    0.02    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19921101        19921130        12      4.8
        0.0163  0.0195  0.6     0.72    0.54    0.65    0.47    0.56    0.42    0.5     0.035   0.042
        0.23    0.28    0.03    0.04    0.03    0.04    0.02    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19921201        19921231        17.3    4.7
        0.02    0.0347  0.65    1.13    0.58    1.01    0.57    0.99    0.47    0.81    0.047   0.081
        0.16    0.28    0.02    0.03    0.03    0.05    0.01    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19930101        19930131        10.8    4.9
        0.0128  0.0139  0.43    0.47    0.37    0.4     0.4     0.43    0.48    0.52    0.026   0.028
        0.25    0.27    0.02    0.02    0.03    0.03    0.02    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19930201        19930228        13.6    4.9
        0.0141  0.0192  0.41    0.56    0.35    0.48    0.47    0.64    0.41    0.56    0.024   0.033
        0.18    0.25    0.03    0.04    0.03    0.04    0.01    0.01
MONTH           CAPM86341A    Jackson 45.593  63.842  19930301        19930331        17.8    4.9
        0.0122  0.0217  0.51    0.91    0.37    0.66    0.19    0.34    1.06    1.89    0.026   0.046
        0.6     1.07    0.04    0.07    0.08    0.14    0.03    0.05
MONTH           CAPM86341A    Jackson 45.593  63.842  19930401        19930430        15.1    4.7
        0.0211  0.0318  0.8     1.2     0.74    1.11    0.38    0.57    0.4     0.6     0.079   0.119
        0.21    0.32    0.04    0.06    0.03    0.05    0.01    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19930501        19930531        8.9     4.5
        0.0314  0.028   1.27    1.13    1.18    1.05    0.88    0.78    0.67    0.6     0.2     0.178
        0.35    0.31    0.07    0.06    0.06    0.05    0.02    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19930601        19930630        11.3    4.6
        0.0241  0.0272  0.91    1.03    0.77    0.87    0.6     0.68    0.99    1.12    0.117   0.132
        0.56    0.63    0.06    0.07    0.07    0.08    0.03    0.03
MONTH           CAPM86341A    Jackson 45.593  63.842  19930701        19930731        12.2    4.8
        0.016   0.0195  0.55    0.67    0.48    0.59    0.37    0.45    0.54    0.66    0.051   0.062
        0.29    0.35    0.03    0.04    0.04    0.05    0.02    0.02
MONTH           CAPM86341A    Jackson 45.593  63.842  19930801        19930831        1.9     4.1
        0.0837  0.016   1.96    0.37    1.91    0.36    2.05    0.39    0.38    0.07    0.307   0.059
        0.16    0.03    0.05    0.01    0.03    0.01    0.01    0
MONTH           CAPM86341A    Jackson 45.593  63.842  19930901        19930930        10.6    4.5
        0.0325  0.0343  0.89    0.94    0.86    0.91    0.67    0.71    0.23    0.24    0.116   0.122
        0.11    0.12    0.01    0.01    0.02    0.02    0.01    0.01
MONTH           CAPM86341A    Jackson 45.593  63.842  19931001        19931031        18.3    4.7
        0.0191  0.035   0.7     1.28    0.64    1.17    0.52    0.95    0.49    0.93    0.094   0.172
        0.27    0.51    0.04    0.07    0.04    0.08    0.02    0.04
MONTH           CAPM86341A    Jackson 45.593  63.842  19931101        19931130        16.6    4.6
        0.0271  0.045   0.9     1.49    0.77    1.28    0.73    1.21    0.96    1.59    0.088   0.146
        0.53    0.88    0.04    0.07    0.07    0.12    0.03    0.05
MONTH           CAPM86341A    Jackson 45.593  63.842  19931201        19931231        24.1    4.9
        0.0116  0.028   0.63    1.53    0.35    0.84    0.25    0.61    1.84    4.47    0.027   0.065
        0.99    2.4     0.04    0.1     0.13    0.32    0.04    0.1
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MONTH           CAPM86341A  Jackson 45.593  63.842  19940101        19940131        19.8    4.9
        0.0129  0.0255  0.43    0.85    0.31    0.61    0.35    0.69    0.88    1.74    0.021   0.042
        0.49    0.97    0.02    0.04    0.06    0.12    0.02    0.04
MONTH           CAPM86341A  Jackson 45.593  63.842  19940201        19940228        5.6     4.7
        0.0209  0.0117  0.41    0.23    0.32    0.18    1.09    0.61    0.67    0.37    0.061   0.034
        0.39    0.22    0.07    0.04    0.05    0.03    0.02    0.01
MONTH           CAPM86341A  Jackson 45.593  63.842  19940301        19940331        22.1    4.8
        0.0169  0.0373  0.56    1.24    0.51    1.13    0.33    0.73    0.41    0.91    0.046   0.102
        0.23    0.51    0.02    0.04    0.03    0.07    0.01    0.02
MONTH           CAPM86341A  Jackson 45.593  63.842  19940401        19940430        11.3    4.6
        0.0252  0.0361  1.01    1.45    0.97    1.39    0.65    0.93    0.26    0.37    0.182   0.206
        0.16    0.23    0.06    0.07    0.03    0.04    0.01    0.01
MONTH           CAPM86341A  Jackson 45.593  63.842  19940501        19940531        15      4.7
        0.0187  0.0281  0.85    1.28    0.77    1.16    0.5     0.75    0.54    0.81    0.142   0.213
        0.29    0.44    0.04    0.06    0.04    0.06    0.02    0.03
MONTH           CAPM86341A  Jackson 45.593  63.842  19940601        19940630        7.4     4.7
        0.0191  0.0141  0.99    0.73    0.95    0.7     0.7     0.52    0.3     0.22    0.139   0.103
        0.15    0.11    0.08    0.06    0.03    0.02    0.02    0.01
MONTH           CAPM86341A  Jackson 45.593  63.842  19940701        19940731        5.9     4.5
        0.0304  0.018   1.17    0.69    1.15    0.68    0.88    0.52    0.19    0.11    0.143   0.085
        0.08    0.05    0.02    0.01    0.02    0.01    0.01    0.01
MONTH           CAPM86341A  Jackson 45.593  63.842  19940801        19940831        6.5     4.5
        0.0288  0.0186  0.95    0.61    0.94    0.61    0.69    0.45    0.12    0.08    0.111   0.072
        0.06    0.04    0.02    0.01    0.01    0.01    0.01    0.01
MONTH           CAPM86341A  Jackson 45.593  63.842  19940901        19940930        8.6     4.6
        0.0229  0.0197  0.98    0.84    0.89    0.77    0.57    0.49    0.6     0.52    0.105   0.091
        0.33    0.28    0.04    0.03    0.05    0.04    0.02    0.02
MONTH           CAPM86341A  Jackson 45.593  63.842  19941001        19941031        3.3     4.5
        0.0314  0.0104  1.82    0.6     1.17    0.39    0.91    0.3     4.34    1.44    0.089   0.03
        2.34    0.78    0.17    0.06    0.35    0.12    0.08    0.03
MONTH           CAPM86341A  Jackson 45.593  63.842  19941101        19941130        15.8    4.9
        0.0115  0.0182  0.47    0.74    0.4     0.63    0.31    0.49    0.53    0.84    0.041   0.065
        0.3     0.47    0.02    0.03    0.04    0.06    0.02    0.03
MONTH           CAPM86341A  Jackson 45.593  63.842  19941201        19941231        14.4    4.9
        0.0136  0.0196  0.46    0.66    0.37    0.53    0.47    0.68    0.68    0.98    0.041   0.059
        0.37    0.53    0.03    0.04    0.05    0.07    0.02    0.03
MONTH           CAPM86341A  Jackson 45.593  63.842  19950101        19950131        16.8    4.8
        0.0175  0.0294  0.52    0.87    0.43    0.72    0.58    0.98    0.56    0.94    0.039   0.067
        0.3     0.5     0.03    0.05    0.05    0.08    0.03    0.05
MONTH           CAPM86341A  Jackson 45.593  63.842  19950201        19950228        14      4.6
        0.024   0.0336  0.66    0.92    0.59    0.82    1.06    1.48    0.51    0.71    0.096   0.134
        0.28    0.39    0.03    0.04    0.03    0.04    0.02    0.03
MONTH           CAPM86341A  Jackson 45.593  63.842  19950301        19950331        6.9     4.8
        0.0144  0.0099  0.57    0.39    0.5     0.34    0.38    0.26    0.5     0.34    0.072   0.05
        0.28    0.19    0.04    0.03    0.04    0.03    0.01    0.01
MONTH           CAPM86341A  Jackson 45.593  63.842  19950401        19950430        7.3     4.5
        0.0306  0.0222  1.46    1.06    1.38    1       0.7     0.51    0.55    0.4     0.185   0.134
        0.26    0.19    0.08    0.06    0.04    0.03    0.04    0.03
MONTH           CAPM86341A  Jackson 45.593  63.842  19950501        19950531        15.9    4.9
        0.0127  0.0202  0.53    0.84    0.47    0.75    0.4     0.63    0.43    0.68    0.054   0.086
        0.26    0.41    0.05    0.08    0.03    0.05    0.04    0.06
MONTH           CAPM86341A  Jackson 45.593  63.842  19950601        19950630        16.9    4.7
        0.0217  0.0367  0.82    1.39    0.8     1.35    0.73    1.23    0.17    0.29    0.186   0.314
        0.08    0.14    0.04    0.07    0.02    0.03    0.04    0.07
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MONTH           CAPM86341A   Jackson  45.593   63.842   19950701           19950731        9.9      4.5
         0.0297 0.0295  0.93    0.92     0.91     0.9      0.98     0.97     0.11     0.11     0.149    0.148
         0.05   0.05    0.03    0.03     0.01     0.01     0.02     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19950801           19950831        7.3      4.8
         0.0167 0.0122  0.65    0.47     0.52     0.38     0.43     0.31     0.94     0.69     0.11     0.08
         0.51   0.37    0.04    0.03     0.06     0.04     0.03     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19950901           19950930        9.7      4.7
         0.0212 0.0206  0.85    0.83     0.81     0.79     0.52     0.51     0.31     0.3      0.101    0.098
         0.18   0.18    0.02    0.02     0.02     0.02     0.01     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19951001           19951031        12.1     4.9
         0.014  0.0169  0.65    0.79     0.52     0.63     0.49     0.59     0.92     1.11     0.087    0.105
         0.52   0.63    0.05    0.06     0.07     0.08     0.03     0.04
MONTH           CAPM86341A   Jackson  45.593   63.842   19951101           19951130        18.1     4.8
         0.0149 0.0269  0.66    1.19     0.48     0.87     0.48     0.87     1.25     2.26     0.044    0.08
         0.69   1.25    0.05    0.09     0.08     0.14     0.03     0.05
MONTH           CAPM86341A   Jackson  45.593   63.842   19951201           19951231        13.9     5
         0.0108 0.015   0.44    0.61     0.3      0.42     0.29     0.4      0.97     1.35     0.026    0.036
         0.52   0.72    0.03    0.04     0.06     0.08     0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19960101           19960131        11.6     4.7
         0.0187 0.0217  0.89    1.03     0.69     0.8      0.53     0.61     1.42     1.65     0.066    0.076
         0.8    0.93    0.05    0.06     0.1      0.12     0.04     0.05
MONTH           CAPM86341A   Jackson  45.593   63.842   19960201           19960229        17       4.7
         0.018  0.0306  0.67    1.14     0.63     1.07     0.57     0.97     0.3      0.51     0.072    0.122
         0.16   0.27    0.04    0.07     0.02     0.03     0.01     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19960301           19960331        10.6     4.6
         0.0242 0.0256  0.93    0.98     0.88     0.93     0.92     0.97     0.34     0.36     0.126    0.133
         0.17   0.18    0.05    0.05     0.02     0.02     0.01     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19960401           19960430        14.5     4.8
         0.016  0.0232  0.82    1.19     0.75     1.09     0.52     0.75     0.53     0.79     0.106    0.154
         0.29   0.43    0.05    0.07     0.04     0.06     0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19960501           19960531        10.9     4.8
         0.016  0.0175  0.82    0.89     0.76     0.83     0.68     0.74     0.4      0.44     0.117    0.128
         0.24   0.26    0.07    0.08     0.04     0.04     0.03     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19960601           19960630        5.1      4.8
         0.0152 0.0077  1.07    0.54     1.05     0.53     1.1      0.56     0.14     0.07     0.162    0.082
         0.05   0.03    0.03    0.02     0.01     0.01     0.02     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19960701           19960731        17.5     4.5
         0.0339 0.0594  1.17    2.05     1.15     2.01     0.86     1.51     0.19     0.33     0.177    0.31
         0.09   0.16    0.03    0.05     0.02     0.04     0.01     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19960801           19960831        2.9      4.4
         0.0381 0.011   1.43    0.41     1.41     0.41     1.14     0.33     0.2      0.06     0.199    0.057
         0.1    0.03    0.06    0.02     0.02     0.01     0.02     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19960901           19960930        28.7     5.1
         0.0088 0.0253  0.51    1.46     0.39     1.12     0.24     0.69     0.89     2.55     0.035    0.1
         0.5    1.44    0.02    0.06     0.06     0.17     0.02     0.06
MONTH           CAPM86341A   Jackson  45.593   63.842   19961001           19961031        13.3     4.7
         0.0185 0.0245  0.82    1.09     0.74     0.98     0.59     0.78     0.58     0.77     0.092    0.122
         0.14   0.19    0.03    0.04     0.04     0.05     0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19961101           19961130        10.2     4.8
         0.0167 0.0171  0.86    0.88     0.6      0.61     0.61     0.62     1.79     1.83     0.067    0.069
         1.12   1.15    0.06    0.06     0.13     0.13     0.03     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19961201           19961231        13.9     5
         0.0112 0.0156  0.41    0.57     0.32     0.44     0.35     0.49     0.64     0.89     0.029    0.04
         0.38   0.53    0.02    0.03     0.05     0.07     0.01     0.01
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MONTH           CAPM86341A   Jackson  45.593   63.842   19970101          19970131          15.1     4.6
        0.0241  0.0363  0.8     1.21     0.64     0.97     0.86     1.3      1.01     1.52     0.059    0.089
        0.62    0.93    0.03    0.05     0.08     0.12     0.03     0.05
MONTH           CAPM86341A   Jackson  45.593   63.842   19970201          19970228          11.1     4.6
        0.0282  0.0314  1.21    1.35     1.13     1.26     1.66     1.85     0.36     0.4      0.208    0.232
        0.26    0.29    0.06    0.07     0.04     0.04     0.02     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19970301          19970331          13.6     4.8
        0.015   0.0204  0.49    0.66     0.45     0.61     0.55     0.75     0.28     0.38     0.028    0.038
        0.15    0.2     0.01    0.01     0.02     0.03     0.01     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19970401          19970430          12.7     4.7
        0.0201  0.0254  1.14    1.44     0.95     1.2      0.44     0.59     1.55     1.96     0.107    0.135
        0.78    0.99    0.05    0.06     0.1      0.13     0.03     0.04
MONTH           CAPM86341A   Jackson  45.593   63.842   19970501          19970531          13       4.7
        0.0225  0.0293  0.93    1.21     0.85     1.11     0.77     1        0.52     0.68     0.144    0.187
        0.29    0.38    0.04    0.05     0.04     0.05     0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19970601          19970630          8.9      4.5
        0.0356  0.0315  1.5     1.33     1.47     1.3      1.03     0.91     0.25     0.22     0.194    0.172
        0.14    0.12    0.05    0.04     0.03     0.03     0.03     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19970701          19970731          1.6      4.7
        0.0216  0.0034  1.11    0.17     1.08     0.17     0.75     0.12     0.23     0.04     0.128    0.02
        0.12    0.02    0.05    0.01     0.02     0        0.02     0
MONTH           CAPM86341A   Jackson  45.593   63.842   19970801          19970831          5.4      4.4
        0.0374  0.0203  1.58    0.86     1.47     0.8      1.03     0.56     0.76     0.41     0.149    0.081
        0.42    0.23    0.05    0.03     0.06     0.03     0.03     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19970901          19970930          9        4.2
        0.0599  0.0539  2.72    2.45     2.65     2.39     1.64     1.48     0.37     0.33     0.292    0.263
        0.17    0.15    0.03    0.03     0.04     0.04     0.02     0.02
MONTH           CAPM86341A   Jackson  45.593   63.842   19971001          19971031          5.1      4.7
        0.0225  0.0114  0.9     0.46     0.81     0.41     0.99     0.5      0.6      0.3      0.124    0.063
        0.16    0.08    0.05    0.03     0.05     0.03     0.02     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19971101          19971130          16.8     4.6
        0.0276  0.0464  0.89    1.5      0.77     1.29     1.22     2.05     0.85     1.43     0.143    0.24
        0.48    0.81    0.04    0.07     0.06     0.1      0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19971201          19971231          15.7     4.8
        0.0169  0.0266  0.59    0.93     0.45     0.71     0.62     0.98     0.99     1.56     0.045    0.071
        0.55    0.87    0.04    0.06     0.07     0.11     0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19980101          19980131          27.1     5
        0.0095  0.0257  0.39    1.06     0.35     0.95     0.23     0.62     0.31     0.84     0.019    0.051
        0.16    0.43    0.02    0.05     0.02     0.05     0.01     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19980201          19980228          6.3      5
        0.0109  0.0068  0.49    0.31     0.43     0.27     0.23     0.14     0.37     0.23     0.032    0.02
        0.24    0.15    0.03    0.02     0.03     0.02     0.02     0.01
MONTH           CAPM86341A   Jackson  45.593   63.842   19980301          19980331          15.2     4.8
        0.0151  0.0229  0.77    1.17     0.67     1.02     0.51     0.77     0.65     0.99     0.079    0.12
        0.39    0.59    0.05    0.08     0.05     0.08     0.02     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19980401          19980430          12.4     4.7
        0.0218  0.027   1.12    1.39     1.03     1.28     0.88     1.09     0.6      0.74     0.154    0.191
        0.34    0.42    0.1     0.12     0.05     0.06     0.03     0.04
MONTH           CAPM86341A   Jackson  45.593   63.842   19980501          19980531          6.7      4.4
        0.0437  0.0295  1.9     1.28     1.88     1.27     1.36     0.92     0.21     0.14     0.345    0.233
        0.11    0.07    0.11    0.07     0.03     0.02     0.04     0.03
MONTH           CAPM86341A   Jackson  45.593   63.842   19980601          19980630          10.3     4.7
        0.0223  0.0231  0.95    0.98     0.88     0.91     0.69     0.71     0.47     0.49     0.128    0.132
        0.26    0.27    0.04    0.04     0.03     0.03     0.02     0.02
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MONTH               CAPM86341A          Jackson   45.593    63.842    19980701            19980731            3.7       4.4
          0.0433    0.0162    1.55      0.58      1.53      0.57      1.17      0.44      0.08      0.03      0.195     0.073
          0.04      0.01      0.04      0.01      0.01      0         0.01      0
MONTH               CAPM86341A          Jackson   45.593    63.842    19980801            19980831            7.7       4.6
          0.0272    0.0209    1.32      1.02      1.14      0.88      0.7       0.54      1.39      1.07      0.141     0.109
          0.74      0.57      0.08      0.06      0.1       0.08      0.05      0.04
MONTH               CAPM86341A          Jackson   45.593    63.842    19980901            19980930            16        4.6
          0.0274    0.0438    1.2       1.92      1.18      1.89      0.65      1.04      0.15      0.24      0.166     0.265
          0.08      0.13      0.02      0.03      0.01      0.02      0.02      0.03
MONTH               CAPM86341A          Jackson   45.593    63.842    19981001            19981031            21.2      4.9
          0.0122    0.0259    0.63      1.34      0.54      1.15      0.3       0.64      0.64      1.36      0.049     0.104
          0.34      0.72      0.03      0.06      0.04      0.08      0.02      0.04
MONTH               CAPM86341A          Jackson   45.593    63.842    19981101            19981130            40.2      .
          .         .         .         .         .         .         .         .         .         .         .         .
          .         .         .         .         .         .         .         .
MONTH               CAPM86341A          Jackson   45.593    63.842    19981201            19981231            9.9       4.5
          0.0292    0.029     0.99      0.98      0.93      0.92      1.28      1.27      0.46      0.46      0.102     0.101
          0.25      0.25      0.04      0.04      0.03      0.03      0.02      0.02
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SUMPR      SITEID     SITENAME              LAT        LON        STARTPER              ENDPER                TOTPRCP               pH
           HPLCN      HPLDP      SO4CN      SO4DP      XSO4CN                XSO4DP                NO3CN      NO3DP      CLDN       CLDP
           NH4CN      NH4DP      NACN       NADP       CACN       CADP       MGCN       MGDP       KCN        KDP
QUART      CAPM86341A            Jackson    45.593     63.842     19831001              19831231              40.9       4.6        0.023
           0.0941     1          4.09       0.75       3.07       0.63       2.58       2.23       9.13       .          .          .
           .          0.12       0.49       0.12       0.49       0.05       0.2
QUART      CAPM86341A            Jackson    45.593     63.842     19840101              19840331              47.5       4.7        0.018
           0.0855     1.09       5.18       0.95       4.51       0.51       2.42       1.21       5.75       .          .          .
           .          0.21       1          0.1        0.48       0.03       0.14
QUART      CAPM86341A            Jackson    45.593     63.842     19840401              19840630              47.7       4.9        0.0124
           0.0592     1.14       5.44       0.97       4.63       0.37       1.77       1.21       5.77       .          .          .
           .          0.25       1.19       0.1        0.48       0.06       0.29
QUART      CAPM86341A            Jackson    45.593     63.842     19840701              19840930              39.1       4.6        0.024
           0.0939     1.13       4.42       1.09       4.27       0.46       1.8        .          .          .          .          .
           .          .          .          0.02       0.08       0.02       0.08
QUART      CAPM86341A            Jackson    45.593     63.842     19841001              19841231              20.1       4.5        0.0341
           0.0684     1.52       3.05       1.39       2.79       1.08       2.17       1.04       2.09       0.123      0.247      .
           .          0.08       0.16       0.07       0.14       0.04       0.08
QUART      CAPM86341A            Jackson    45.593     63.842     19850101              19850331              29.9       4.5        0.0293
           0.0875     1.06       3.17       0.92       2.75       1.21       3.62       0.56       1.67       0.111      0.332      0.57
           1.7        0.1        0.3        0.06       0.18       0.03       0.09
QUART      CAPM86341A            Jackson    45.593     63.842     19850401              19850630              48.9       4.5        0.0325
           0.1589     1.29       6.31       1.24       6.06       0.73       3.84       0.33       1.61       0.117      0.572      0.17
           0.83       0.04       0.2        0.03       0.15       0.01       0.05
QUART      CAPM86341A            Jackson    45.593     63.842     19850701              19850930              25.5       4.6        0.0232
           0.0592     0.84       2.14       0.82       2.09       0.54       1.38       0.22       0.56       0.078      0.199      0.1
           0.26       0.03       0.08       0.02       0.05       0.01       0.03
QUART      CAPM86341A            Jackson    45.593     63.842     19851001              19851231              27.6       4.6        0.0234
           0.0645     0.95       2.62       0.8        2.2        0.72       1.98       1.14       3.14       0.075      0.207      0.61
           1.68       0.04       0.11       0.07       0.19       0.03       0.08
QUART      CAPM86341A            Jackson    45.593     63.842     19860101              19860331              43.4       4.7        0.0208
           0.0903     0.78       3.39       0.71       3.08       0.54       2.35       0.72       3.13       0.071      0.308      0.33
           1.43       0.03       0.13       0.04       0.17       0.02       0.09
QUART      CAPM86341A            Jackson    45.593     63.842     19860401              19860630              26.8       4.4        0.0383
           0.1026     1.2        3.21       1.17       3.13       0.65       1.74       0.22       0.59       0.138      0.37       0.11
           0.29       0.03       0.08       0.02       0.05       0.01       0.03
QUART      CAPM86341A            Jackson    45.593     63.842     19860701              19860930              32.5       4.4        0.0435
           0.1414     1.37       4.45       1.34       4.36       0.8        2.6        0.2        0.65       0.131      0.426      0.1
           0.33       0.03       0.1        0.02       0.07       0.01       0.03
QUART      CAPM86341A            Jackson    45.593     63.842     19861001              19861231              32.9       4.6        0.0246
           0.081      0.93       3.06       0.77       2.53       0.7        2.3        1          3.29       0.08       0.263      0.57
           1.88       0.04       0.13       0.07       0.23       0.03       0.1
QUART      CAPM86341A            Jackson    45.593     63.842     19870101              19870331              32.9       4.8        0.0155
           0.0511     0.53       1.75       0.46       1.52       0.39       1.29       0.48       1.58       0.051      0.168      0.29
           0.96       0.03       0.1        0.03       0.1        0.02       0.07
QUART      CAPM86341A            Jackson    45.593     63.842     19870401              19870630              24.7       4.4        0.0373
           0.0921     1.82       4.5        1.79       4.42       0.97       2.4        0.28       0.69       0.219      0.541      0.16
           0.4        0.07       0.17       0.03       0.07       0.02       0.05
QUART      CAPM86341A            Jackson    45.593     63.842     19870701              19870930              30.1       4.7        0.0195
           0.0586     0.85       2.56       0.82       2.46       0.44       1.32       0.25       0.75       0.075      0.225      0.14
           0.42       0.02       0.06       0.02       0.06       0.01       0.03
QUART      CAPM86341A            Jackson    45.593     63.842     19871001              19871231              45.9       4.8        0.0167
           0.0767     0.73       3.35       0.59       2.71       0.45       2.07       1          4.59       0.066      0.303      0.57
           2.62       0.04       0.18       0.07       0.32       0.02       0.09
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QUART CAPM86341A  Jackson 45.593  63.842  19880101        19880331        34.4    4.7     0.0196
        0.0674  0.64    2.2     0.6     2.06    0.55    1.89    0.32    1.1     0.063   0.217   0.19
        0.65    0.03    0.1     0.02    0.07    0.01    0.03
QUART CAPM86341A  Jackson 45.593  63.842  19880401        19880630        42.6    4.7     0.0203
        0.0865  1.23    5.24    1.03    4.39    0.45    1.92    1.43    6.09    0.13    0.554   0.81
        3.45    0.08    0.34    0.11    0.47    0.04    0.17
QUART CAPM86341A  Jackson 45.593  63.842  19880701        19880930        28.6    4.7     0.0201
        0.0575  0.9     2.58    0.88    2.52    0.54    1.55    0.17    0.49    0.099   0.283   0.1
        0.29    0.04    0.11    0.01    0.03    0.01    0.03
QUART CAPM86341A  Jackson 45.593  63.842  19881001        19881231        48      4.8     0.0158
        0.0759  0.59    2.83    0.52    2.5     0.51    2.45    0.52    2.5     0.049   0.235   0.3
        1.44    0.02    0.1     0.03    0.14    0.02    0.1
QUART CAPM86341A  Jackson 45.593  63.842  19890101        19890331        43.2    4.6     0.0252
        0.1089  0.81    3.5     0.76    3.28    0.94    4.06    0.31    1.34    0.076   0.328   0.18
        0.78    0.05    0.22    0.02    0.09    0.02    0.09
QUART CAPM86341A  Jackson 45.593  63.842  19890401        19890630        31.6    4.6     0.028
        0.0885  1.18    3.73    1.12    3.54    0.74    2.34    0.39    1.23    0.118   0.373   0.23
        0.73    0.05    0.16    0.03    0.09    0.02    0.06
QUART CAPM86341A  Jackson 45.593  63.842  19890701        19890930        28      4.6     0.0254
        0.0711  0.99    2.77    0.96    2.69    0.64    1.79    0.2     0.56    0.107   0.299   0.11
        0.31    0.03    0.08    0.02    0.06    0.02    0.06
QUART CAPM86341A  Jackson 45.593  63.842  19891001        19891231        39.2    4.6     0.0271
        0.1063  0.99    3.88    0.91    3.57    0.88    3.45    0.56    2.2     0.086   0.337   0.33
        1.29    0.04    0.16    0.04    0.16    0.02    0.08
QUART CAPM86341A  Jackson 45.593  63.842  19900101        19900331        31.8    4.6     0.0261
        0.0829  0.92    2.92    0.87    2.76    0.89    2.83    0.37    1.18    0.25    0.794   0.22
        0.7     0.04    0.13    0.03    0.1     0.02    0.06
QUART CAPM86341A  Jackson 45.593  63.842  19900401        19900630        45.3    4.8     0.0167
        0.0756  0.71    3.22    0.67    3.03    0.43    1.95    0.26    1.18    0.067   0.303   0.14
        0.63    0.03    0.14    0.02    0.09    0.01    0.05
QUART CAPM86341A  Jackson 45.593  63.842  19900701        19900930        29      4.7     0.0217
        0.0629  0.93    2.7     0.88    2.55    0.51    1.48    0.3     0.87    0.069   0.2     0.17
        0.49    0.04    0.12    0.03    0.09    0.03    0.09
QUART CAPM86341A  Jackson 45.593  63.842  19901001        19901231        63.6    4.8     0.0167
        0.1062  0.76    4.83    0.62    3.94    0.5     3.18    1.01    6.42    0.062   0.394   0.55
        3.5     0.04    0.25    0.07    0.45    0.03    0.19
QUART CAPM86341A  Jackson 45.593  63.842  19910101        19910331        38.8    4.8     0.0168
        0.0652  0.66    2.56    0.61    2.37    0.62    2.41    0.43    1.67    0.065   0.252   0.24
        0.93    0.06    0.23    0.03    0.12    0.02    0.08
QUART CAPM86341A  Jackson 45.593  63.842  19910401        19910630        21.3    4.5     0.0304
        0.0647  1.69    3.59    1.64    3.49    0.83    1.77    0.36    0.77    0.238   0.506   0.15
        0.32    0.11    0.23    0.03    0.06    0.03    0.06
QUART CAPM86341A  Jackson 45.593  63.842  19910701        19910930        45.7    4.7     0.021
        0.0961  0.95    4.35    0.9     4.12    0.5     2.29    0.33    1.51    0.08    0.366   0.19
        0.87    0.03    0.14    0.03    0.14    0.01    0.05
QUART CAPM86341A  Jackson 45.593  63.842  19911001        19911231        39.4    4.6     0.0228
        0.0899  0.97    3.82    0.79    3.11    0.65    2.56    1.35    5.32    0.066   0.26    0.7
        2.76    0.04    0.16    0.09    0.35    0.03    0.12
QUART CAPM86341A  Jackson 45.593  63.842  19920101        19920331        43.9    4.8     0.0158
        0.0694  0.55    2.42    0.45    1.98    0.53    2.33    0.69    3.03    0.041   0.18    0.38
        1.67    0.03    0.13    0.05    0.22    0.02    0.09
QUART CAPM86341A  Jackson 45.593  63.842  19920401        19920630        18.9    4.3     0.0515
        0.0972  2.27    4.29    2.21    4.17    1.2     2.27    0.41    0.77    0.233   0.44    0.2
        0.38    0.06    0.11    0.03    0.06    0.02    0.04
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QUART CAPM86341A  Jackson 45.593  63.842  19920701        19920930       15.8    4.4     0.038
         0.0599  1.61    2.54    1.57    2.47    1.03    1.62    0.32    0.5     0.127   0.2     0.15
         0.24    0.02    0.03    0.02    0.03    0.02    0.03
QUART CAPM86341A  Jackson 45.593  63.842  19921001        19921231       41.6    4.7     0.02
         0.0832  0.75    3.12    0.67    2.79    0.54    2.25    0.54    2.25    0.055   0.229   0.26
         1.08    0.03    0.12    0.04    0.17    0.02    0.08
QUART CAPM86341A  Jackson 45.593  63.842  19930101        19930331       42.3    4.9     0.013
         0.0549  0.46    1.94    0.36    1.52    0.33    1.39    0.7     2.96    0.025   0.106   0.38
         1.61    0.03    0.13    0.05    0.21    0.02    0.08
QUART CAPM86341A  Jackson 45.593  63.842  19930401        19930630       35.3    4.6     0.0248
         0.0875  0.96    3.39    0.86    3.03    0.58    2.05    0.66    2.33    0.123   0.434   0.36
         1.27    0.06    0.21    0.05    0.18    0.02    0.07
QUART CAPM86341A  Jackson 45.593  63.842  19930701        19930930       24.7    4.6     0.0283
         0.0698  0.81    2       0.75    1.85    0.63    1.55    0.39    0.96    0.099   0.244   0.2
         0.49    0.02    0.05    0.03    0.07    0.02    0.05
QUART CAPM86341A  Jackson 45.593  63.842  19931001        19931231       59      4.7     0.0183
         0.108   0.7     4.13    0.56    3.31    0.46    2.71    1.16    6.97    0.065   0.384   0.63
         3.79    0.04    0.24    0.08    0.48    0.03    0.18
QUART CAPM86341A  Jackson 45.593  63.842  19940101        19940331       47.5    4.8     0.0157
         0.0745  0.49    2.33    0.4     1.9     0.42    1.99    0.64    3.04    0.038   0.18    0.36
         1.71    0.03    0.14    0.05    0.24    0.02    0.09
QUART CAPM86341A  Jackson 45.593  63.842  19940401        19940630       33.7    4.7     0.0219
         0.0739  0.97    3.27    0.91    3.07    0.62    2.09    0.39    1.32    0.154   0.519   0.21
         0.78    0.05    0.19    0.04    0.13    0.02    0.07
QUART CAPM86341A  Jackson 45.593  63.842  19940701        19940930       21      4.6     0.0268
         0.0563  1.02    2.14    0.98    2.06    0.69    1.45    0.34    0.71    0.118   0.248   0.18
         0.38    0.03    0.06    0.03    0.06    0.02    0.04
QUART CAPM86341A  Jackson 45.593  63.842  19941001        19941231       33.5    4.8     0.0143
         0.048   0.6     2.01    0.46    1.54    0.44    1.48    0.97    3.26    0.046   0.154   0.53
         1.78    0.04    0.13    0.07    0.24    0.03    0.1
QUART CAPM86341A  Jackson 45.593  63.842  19950101        19950331       37.7    4.7     0.0193
         0.0727  0.58    2.19    0.5     1.88    0.72    2.71    0.53    2       0.064   0.241   0.29
         1.09    0.03    0.11    0.04    0.15    0.02    0.08
QUART CAPM86341A  Jackson 45.593  63.842  19950401        19950630       40      4.7     0.0198
         0.0793  0.82    3.28    0.77    3.08    0.6     2.4     0.34    1.36    0.134   0.536   0.18
         0.72    0.05    0.2     0.03    0.12    0.04    0.16
QUART CAPM86341A  Jackson 45.593  63.842  19950701        19950930       27      4.6     0.0231
         0.0623  0.83    2.24    0.77    2.08    0.67    1.81    0.41    1.11    0.121   0.326   0.22
         0.59    0.03    0.08    0.03    0.08    0.02    0.05
QUART CAPM86341A  Jackson 45.593  63.842  19951001        19951231       44.1    4.9     0.0134
         0.059   0.59    2.6     0.44    1.94    0.42    1.85    1.07    4.71    0.05    0.22    0.59
         2.6     0.04    0.18    0.07    0.31    0.03    0.13
QUART CAPM86341A  Jackson 45.593  63.842  19960101        19960331       39.2    4.7     0.0199
         0.0779  0.8     3.13    0.72    2.82    0.66    2.58    0.63    2.47    0.085   0.333   0.34
         1.33    0.05    0.2     0.04    0.16    0.02    0.08
QUART CAPM86341A  Jackson 45.593  63.842  19960401        19960630       30.5    4.8     0.0159
         0.0485  0.86    2.62    0.8     2.44    0.67    2.04    0.4     1.22    0.119   0.363   0.22
         0.67    0.05    0.15    0.04    0.12    0.02    0.06
QUART CAPM86341A  Jackson 45.593  63.842  19960701        19960930       49.1    4.7     0.0195
         0.0957  0.8     3.93    0.72    3.54    0.51    2.5     0.6     2.95    0.095   0.466   0.33
         1.62    0.03    0.15    0.04    0.2     0.02    0.1
QUART CAPM86341A  Jackson 45.593  63.842  19961001        19961231       37.4    4.8     0.0153
         0.0572  0.68    2.54    0.55    2.06    0.51    1.91    0.93    3.48    0.062   0.232   0.5
         1.87    0.03    0.11    0.07    0.26    0.02    0.07
```

```
QUART CAPM86341A        Jackson 45.593  63.842  19970101        19970331        39.8    4.7     0.0219
        0.0871  0.81    3.22    0.72    2.86    0.98    3.9     0.58    2.31    0.09    0.358   0.36
        1.43    0.03    0.12    0.05    0.2     0.02    0.08
QUART CAPM86341A        Jackson 45.593  63.842  19970401        19970630        34.5    4.6     0.025
        0.0863  1.15    3.97    1.04    3.59    0.71    2.45    0.83    2.87    0.143   0.494   0.43
        1.48    0.04    0.14    0.06    0.21    0.03    0.1
QUART CAPM86341A        Jackson 45.593  63.842  19970701        19970930        16      4.3     0.0486
        0.0777  2.18    3.48    2.1     3.36    1.34    2.14    0.49    0.78    0.228   0.364   0.25
        0.4     0.04    0.06    0.04    0.06    0.02    0.03
QUART CAPM86341A        Jackson 45.593  63.842  19971001        19971231        37.6    4.7     0.0225
        0.0846  0.77    2.9     0.65    2.44    0.94    3.53    0.87    3.27    0.099   0.372   0.47
        1.77    0.04    0.15    0.06    0.23    0.02    0.08
QUART CAPM86341A        Jackson 45.593  63.842  19980101        19980331        48.5    4.9     0.0115
        0.0558  0.52    2.52    0.46    2.23    0.32    1.55    0.43    2.09    0.04    0.194   0.24
        1.16    0.03    0.15    0.03    0.15    0.01    0.05
QUART CAPM86341A        Jackson 45.593  63.842  19980401        19980630        29.5    4.6     0.027
        0.0796  1.24    3.66    1.17    3.45    0.92    2.71    0.47    1.39    0.189   0.557   0.26
        0.77    0.08    0.24    0.04    0.12    0.03    0.09
QUART CAPM86341A        Jackson 45.593  63.842  19980701        19980930        27.4    4.5     0.0295
        0.0809  1.28    3.51    1.22    3.35    0.73    2       0.49    1.34    0.163   0.447   0.26
        0.71    0.04    0.11    0.04    0.11    0.03    0.08
QUART CAPM86341A        Jackson 45.593  63.842  19981001        19981231        71.3    .       .
        .       .       .       .       .       .       .       .       .       .       .       .
        .       .       .       .       .       .       .
```

```
SUMPR      SITEID     SITENAME              LAT        LON        STARTPER              ENDPER                TOTPRCP               pH
           HPLCN      HPLDP      SO4CN      SO4DP      XSO4CN                XSO4DP                NO3CN      NO3DP      CLDN       CLDP
           NH4CN      NH4DP      NACN       NADP       CACN       CADP       MGCN       MGDP       KCN        KDP
YEAR       CAPM86341A            Jackson    45.593     63.842     19840101              19841231              154.4      4.7        0.0198
           0.3057     1.17       18.06      1.05       16.21      0.52       8.03       1.05       16.21      .          .          .
           .          .          .          0.07       1.08       0.04       0.62
YEAR       CAPM86341A            Jackson    45.593     63.842     19850101              19851231              131.9      4.6        0.0282
           0.3718     1.08       14.24      1          13.19      0.8        10.55      0.53       6.99       0.1        1.319      0.34
           4.48       0.05       0.66       0.04       0.53       0.02       0.26
YEAR       CAPM86341A            Jackson    45.593     63.842     19860101              19861231              135.6      4.5        0.0308
           0.4177     1.05       14.24      0.97       13.16      0.66       8.95       0.55       7.46       0.101      1.37       0.28
           3.8        0.03       0.41       0.04       0.54       0.02       0.27
YEAR       CAPM86341A            Jackson    45.593     63.842     19870101              19871231              133.6      4.7        0.0207
           0.2766     0.9        12.03      0.83       11.09      0.53       7.08       0.56       7.48       0.092      1.229      0.33
           4.41       0.04       0.53       0.04       0.53       0.02       0.27
YEAR       CAPM86341A            Jackson    45.593     63.842     19880101              19881231              153.6      4.7        0.0188
           0.2888     0.83       12.75      0.74       11.37      0.51       7.84       0.64       9.83       0.084      1.29       0.36
           5.53       0.04       0.61       0.05       0.77       0.02       0.31
YEAR       CAPM86341A            Jackson    45.593     63.842     19890101              19891231              142        4.6        0.0264
           0.3749     0.98       13.92      0.92       13.06      0.82       11.64      0.38       5.4        0.094      1.335      0.22
           3.12       0.04       0.57       0.03       0.43       0.02       0.28
YEAR       CAPM86341A            Jackson    45.593     63.842     19900101              19901231              169.7      4.7        0.0191
           0.324      0.8        13.57      0.72       12.21      0.56       9.5        0.56       9.5        0.101      1.713      0.31
           5.26       0.03       0.51       0.04       0.68       0.02       0.34
YEAR       CAPM86341A            Jackson    45.593     63.842     19910101              19911231              145.2      4.7        0.0217
           0.3152     0.99       14.38      0.9        13.07      0.62       9          0.64       9.3        0.095      1.38       0.33
           4.79       0.05       0.73       0.05       0.73       0.02       0.29
YEAR       CAPM86341A            Jackson    45.593     63.842     19920101              19921231              120.2      4.6        0.0259
           0.3112     1.03       12.38      0.96       11.54      0.71       8.53       0.55       6.61       0.088      1.057      0.28
           3.36       0.03       0.36       0.04       0.48       0.02       0.24
YEAR       CAPM86341A            Jackson    45.593     63.842     19930101              19931231              161.2      4.7        0.0198
           0.3192     0.71       11.45      0.6        9.67       0.48       7.74       0.76       12.25      0.072      1.161      0.41
           6.61       0.04       0.64       0.06       0.97       0.02       0.32
YEAR       CAPM86341A            Jackson    45.593     63.842     19940101              19941231              135.8      4.7        0.0186
           0.2526     0.72       9.78       0.63       8.55       0.52       7.06       0.61       8.28       0.081      1.1        0.33
           4.48       0.04       0.54       0.05       0.68       0.02       0.27
YEAR       CAPM86341A            Jackson    45.593     63.842     19950101              19951231              148.7      4.7        0.0184
           0.2737     0.69       10.26      0.61       9.07       0.59       8.78       0.62       9.22       0.089      1.324      0.34
           5.06       0.04       0.59       0.04       0.59       0.03       0.45
YEAR       CAPM86341A            Jackson    45.593     63.842     19960101              19961231              156.2      4.8        0.0179
           0.2795     0.78       12.18      0.69       10.77      0.58       9.06       0.65       10.15      0.089      1.39       0.35
           5.47       0.04       0.62       0.05       0.78       0.02       0.31
YEAR       CAPM86341A            Jackson    45.593     63.842     19970101              19971231              127.9      4.6        0.0263
           0.3363     1.06       13.56      0.96       12.28      0.94       12.02      0.72       9.21       0.124      1.586      0.4
           5.12       0.04       0.51       0.05       0.64       0.02       0.26
YEAR       CAPM86341A            Jackson    45.593     63.842     19980101              19981231              176.7      4.7        0.019
           0.3358     0.84       14.85      0.77       13.61      0.56       9.9        0.47       8.31       0.096      1.697      0.25
           4.42       0.04       0.71       0.03       0.53       0.02       0.35
```

Hardcourt, New Brunswick

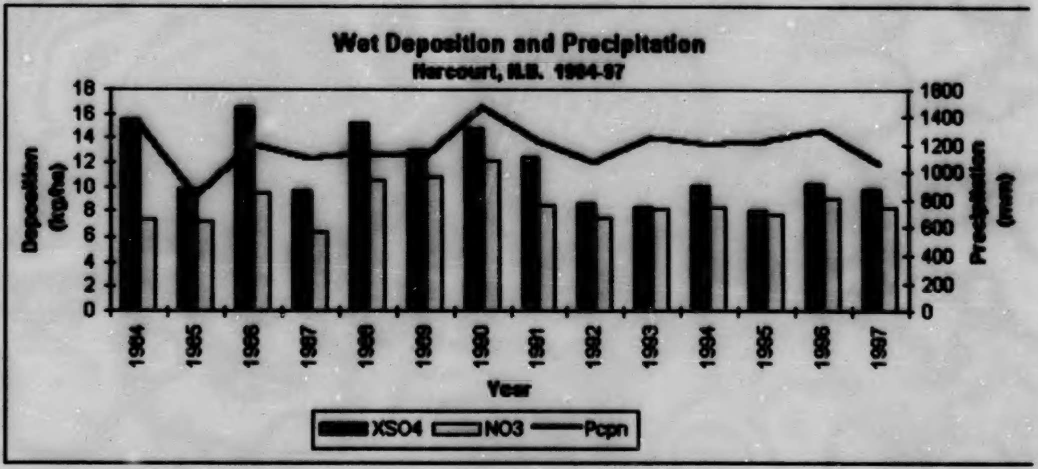
CAPM83751A Harcourt 08/01/83 11/02/93

The Harcourt site was located in rural eastern New Brunswick on private property 2 km north of the village of Harcourt, 55 km north-northwest of the city of Moncton and 40 km west of the salt water Northumberland Strait. The site itself was on a flat forest clearing, covered by grass and weeds, and measured approximately 140 x 120 metres. It was surrounded by mixed forest to the south, east and north. To the west 130 metres, the site was open to moderately travelled Highway 126 and the operator's house was 40 metres away. The surrounding topography was flat and covered with mixed forest. Moderately travelled Highway 116 (Salmon River Road) northwest of the site was sheltered by a bank of trees. There were no industrial, agricultural or urban activities in the area and no on-site obstructions. The site was co-located with a Climate site carrying out standard temperature and precipitation measurements.

CAPM83752A Harcourt B 07/08/93 / /

The Harcourt B site is located 1.2 km north-northwest of the original Harcourt site. It is 3.5 km north of Harcourt and 62 km northwest of Moncton. The topography of the general area is relatively flat with elevation changes less than 25 metres within a 5 km radius. The collector is approximately 300 metres east of route 126 in a location sheltered from high winds to the south and east by forest. There is less shelter to the north and even less to the west. The site itself has a slight slope to the northwest. Route 116 is 1 km south and a gravel road is also 1 km south. A railway passes by 400 metres west and there is some small-scale farming within 5 km. A pulp and paper mill is 45 km north-northwest, the salt water Northumberland Strait is 32 km northeast and a wood stove is 200 metres west. The site moved when the original operator ended his contract.

Graph



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- **Data as Dbase File**

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- **Data as Dbase File**

Acid Precipitation Sensitivity of Canada's Atlantic Provinces

Clair, T.A., J.P. Witteman, S.H. Whitlow (1982) Inland Waters Directorate Tech. Bull. 124, Env. Canada, Ottawa., 12pp. Average pH and acid sensitivity contours were estimated from water quality data collected at over 1100 sites in the Atlantic Provinces. Results indicate very high sensitivity to acid precipitation in southwest Nova Scotia, parts of Cape Breton, and most of Newfoundland and Labrador. Surface water pH results show that acid sensitive areas in Nova Scotia and Newfoundland have generally low pH levels, where those in Labrador retain high levels.

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Using Neural Networks to Predict pH Changes in Acidified Eastern Canadian Lakes

Ehrman, J.M., T.A. Clair and A. Bouchard. (1996) Artificial Intelligence Applications 10: 1-8. Abstract: Predicting changes in the pH of lakes with changes in acid precipitation is a difficult endeavour, especially in areas with high concentraitons of natural organic acids, such as are found in much of eastern Canada. Statistical techniques have been used in a number of studies to try to predict changes in large areas, but cannot be used with confidence because of autocorrelation between variables. Because of the difficulties encountered with chemical and statistical techniques, we used a neural network approach to see if patterns could be detected in water chemistry data. We produced a model that was able to accurately predict the current pH of 164 lakes within 2% of measured values. We then varied lake sulfate concentrations, the main acidification input to this region, to see how the lake pH would change. The neural network approach seemed more sensitive than statistical approaches in making predictions.

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Regional Precipitation and Surface Water Chemistry trends in Southeastern Canada (1983-1991

Clair, T.A., P.J. Dillon, J. Ion, D.S. Jeffries, M. Papineau and R.J. Vet (1995) Can. J. Fish. Aquat. Sci. 52: 197-212 Abstract: We analyzed for trends of acidification related variables from 1983 to 1992 in precipitation concentrations and deposition at six sites and surface water concentration at 111 sites located from central Ontario to easter Newfoundland. Precipitation showed significantly decreasing H+ and SO4-2 concentrations and deposition in central and eastern Ontario and at one of two sites in Québec (deposition only). For Ontario surface water sites, only increasing or stable SO4-2 trends were observed, and these had both concomitant increasing and decreasing trends for pH and (or) acid neutralization capacity (ANC). Despite a considerable number of lakes showing decreasing SO4-2 trends in Québec, pH and ANC also decreased. Québec was also the only region showing extensive evidence of increasing NO3- . The opposite situation was observed in Atlantic Canada lakes where despite increasing SO4-2 , the dominant trend observed was for pH and ANC was increasing. Trends observed for pH and ANC were used to classify the acidification status of our surface water sites: 60 of the 111 were found to be stable (i.e. showing no trends), 17 were continuing to acidify, and 34 were improving.

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Spatial Characterization of Acidification Related Parameters in Sensitive Regions of Atlantic Canada

Esterby, S.R., A.H. El-Shaarawi, G.D. Howell, and T.A. Clair (1989) Water, Air, Soil Pollut. 46: 289-304. Many lakes in eastern Canada are sensitive to long range transport of atmospheric pollutants because of their low buffering capacity. Thus, it is important to assess long term changes in water quality. Due to the large number of lakes, a method was needed for choosing a subset of lakes to monitor regularly. Preliminary surveys were conducted in Nova Scotia and Newfoundland in which water quality parameters connected with acidification were measured in a set of lakes in each region. This paper describes the division of each set of lakes into several groups, with lakes in a group having similar water quality parameter values, by means of cluster analysis and principal component ordination. The characteristics of the groups are shown by graphical procedures and summary statistics, and this characterization is used to both determine the number of groups and describe the final choice. The membership of the groups was subsequently assessed in terms of the influences of terrestrial weathering, marine aerosols, anthropogenically derived mineral acids and natural organic acids.P>

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Step-Wise Analysis of Precipitation and River Chemistry Trends in Atlantic Canada

Esterby, S.R., A.H. El-Shaarawi, G.D. Howell, and T.A. Clair (1989) Water, Air, Soil Pollut. 46: 289-304. Many lakes in eastern Canada are sensitive to long range transport of atmospheric pollutants because of their low buffering capacity. Thus, it is important to assess long term changes in water quality. Due to the large number of lakes, a method was needed for choosing a subset of lakes to monitor regularly. Preliminary surveys were conducted in Nova Scotia and Newfoundland in which water quality parameters connected with acidification were measured in a set of lakes in each region. This paper describes the division of each set of lakes into several groups, with lakes in a

group having similar water quality parameter values, by means of cluster analysis and principal component ordination. The characteristics of the groups are shown by graphical procedures and summary statistics, and this characterization is used to both determine the number of groups and describe the final choice. The membership of the groups was subsequently assessed in terms of the influences of terrestrial weathering, marine aerosols, anthropogenically derived mineral acids and natural organic acids.

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Trends in pH, Calcium, and Sulphate of Rivers in Atlantic Canada

Clair, T.A. and P.H. Whitfield (1983). Limnol. Oceanog. 28: 160-165. Acid precipitation is affecting the chemistry of rivers in Atlantic Canada. ong term records for pH, calcium, and sulfate from 11 rivers were fitted using time series models. Decreases in pH over time were found, but the results for calcium and sulfate were not consistent with the predicted model. The conceptual models used to understand the effects of acid precipitation on water chemistry did not adequately explain the observed changes.

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Acid Precipitation-Related Chemical Trends in 18 Rivers of Atlantic Canada - 1983 to 1992

Clair, T.A. and J.M. Ehrman (1995). Environmental Monitoring and Assessment 78: 1-15 Abstract: Using non-parametric techniques, we studied water chemistry changes from 1983 to 1992 rivers located at the extreme northeastern portion of North America. This period was marked by a reduction of production in sulfate (SO4-2) in eastern Canada from 1982 to 1986, followed by a levelling off from 1986 to 1992. Nitrate (NO3-) production and deposition generally increased over this whole period. We used two time windows, 1983 to 1989 and 1983 to 1992, to determine if changes in river acidification variables occurred over the ten year period. We found significant trends of increasing and acid neutralization capacity (ANC) concentrations at eight sites using both time windows, increased at five and seven sites during the same two time periods. Nitrate showed few consistent trends, while base cations showed increases in the earlier part of the data set and total organic carbon (TOC) showed long-term decreases. There were few significant trends in hydrogen and a slight decrease in exports as opposed to increased concentrations in the same period. We attribute the discrepancy between concentration and export trends to be due to evapotranspiration in the basins, causing a concentration of ions in water. Nitrate and calcium exports showed no trends, while TOC decreased at four or five sites, depending on the time window used. Longer data sets tended to produce more detectable trends.

Overall , water chemistry in the region is showing the effects of reduced loads and is not yet being affected by the increases in NO3- deposition.

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Regional Trends in Aquatic Recovery From Acidification in North America and Europe

Stoddard, J.L., D.S. Jeffries, A. Lukewille, T.A. Clair, (and others) (1999) Nature 401: 575-578 Abstract: Rates of acidic deposition from the atmosphere ('acid rain`) have decreased throughout the 1980s and 1990s across large portions of North America and Europe. Many recent studies have attributed observed reversals in surface-water acidification at national and regional scales to the declining deposition. To test whether emission regulations have led to widespread recovery in surface-water chemistry, we analyzed regional trends between 1980 and 1995 in indicators of acidification (sulphate, nitrate and base-cation concentrations, and measured (Gran) alkalinity) for 205 lakes and streams in eight regions of North America and Europe. Dramatic differences in trend direction and strength for the two decades are apparent. In concordance with general temporal trends in acidic deposition, lake and stream sulphate concentrations decreased in all regions with the exception of Great Britain; all but one of these regions exhibited stronger downward trends in the 1990s than in the 1980s. In contrast, regional declines in lake and stream nitrate concentrations were rare and, when detected, were very small. Recovery in alkalinity, expected whenever strong regional declines in sulphate concentrations have occurred, was observed in all regions of Europe, especially in the 1990s, but in only one region (of five) in North America. We attribute the lack of recovery in three regions (south/central Ontario, the Adirondack/Catskill mountains and midwestern North America to strong regional declines in base-cation concentrations that exceed the decreases in sulphate concentrations.

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The Role of National Parks in Environment Canada's Atlantic Acid Precipitation Monitoring Network

Clair, T.A., J. Pomeroy and J. Ion (1995). in: Ecosystem monitoring and protected areas, (ed) T.B. Herman, S. Bondrup-Neilsen, J.H. Martin Willison and N.W.P. Munroe, Proc. of the Second International Conference on Science and Management of Protected Areas, May 1994, Halifax, N.S., pp 319-325. Abstract: Since 1983, Environment Canada has been operating a lake monitoring network in two of Canada's Atlantic Provinces, Nova Scotia and Newfoundland. The network was designed to see if changes in water chemistry related to acid precipitation could be measured in the region's surface waters. Approximately half the sampling sites are located in National Parks and we

attempted to see if they were representative of the network as a whole. Our results show that the lake chemistry of national park sites was not representative of the network as a whole. Despite the differences in composition, the water chemistry trends we measured at park sites, tended to mirror those of the entire network. We therefore conclude that if funding restraints force a radical change in sampling effort, retrenchment to park sites only should provide the same type of information as from the original network.

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Acid Precipitation and Weathering by Organic Acids in Labrador Lake Basins

Clair, T.A. (1992). Water Resources Bull. 28:507-515 Abstract: Thity-five lakes in southern Labrador sampled in 1981 were resampled in 1989 and water chemistry values were compared between visits. Results showed higher pH, specific conductance, acid neutralization capacity, color, and base cation values in 1989, though sulfate, the ion most likely to reflect acid precipitation impacts, did not vary. The major ion changes measured were probably due to natural hydrological variations and not to changes in acid inputs. Results from the 1989 data showed a slight, but significant decrease in water sulfate concentration trend from western to eastern Labrador, though most values, even in the western portion of the study area, fell close to the values considered background by Brakke et al. (1989). Base cation concentrations exceeded those which could be predicted from weathering by carbonic and bicarbonic acid. Assuming that little weathering is generated by acid precipitation in the region, the excess cations measured are probably a result of bedrock dissolution from organic acids generated by plant decomposition. Calculations showed that organic acid effect could be responsible for 9 to 52 percent of total weathering in the study basins.

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Acid Precipitation Sensitivity of Canada's Atlantic Provinces

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Abstract

Average pH and acid sensitivity contours were estimated from water quality data collected at over 1100 sites in the Atlantic Provinces. Results indicate very high sensitivity to acid precipitation in southwest Nova Scotia, parts of Cape Breton, and most of Newfoundland and Labrador. Surface water pH results show that acid sensitive areas in Nova Scotia and Newfoundland have generally low pH levels, whereas those in Labrador retain high levels.

Résumé

On a estimé les courbes du pH moyen et de la sensibilité à l'acidification dans les provinces de l'Atlantique à partir de données sur la qualité de l'eau provenant de plus de 1100 stations de jaugeage. Les résultats font ressortir une très grande sensibilité aux précipitations acides dans le sud-ouest de la Nouvelle-Écosse, dans certaines parties de l'île du Cap-Breton et dans la plus grande partie de Terre-Neuve et du Labrador. Les analyses montrent que, dans les régions vulnérables de la Nouvelle-Écosse et de Terre-Neuve, l'eau de surface a un pH généralement faible, tandis qu'au Labrador, ce n'est pas le cas.

Acid Precipitation Sensitivity of Canada's Atlantic Provinces

T.A. Clair, J.P. Witteman and S.H. Whitlow

INTRODUCTION

Atlantic Canada is receiving increasing levels of acid precipitation in the form of sulphur and nitrogen oxides, usually originating in the United States or central Canada. In addition, local sources have been shown to have had some effect (Watt *et al.*, 1979). Shaw (1979) measured sulphate concentrations in rainwater at levels between 0 and 9 mg/L, with pH values of between 4.0 and 4.5.

The effects of acid precipitation on surface waters are dependent on the composition of soil and bedrock within a drainage basin. The chemical constituents controlling the buffering capacity within a watershed are principally the calcareous components of the sediments and bedrock, along with aluminum, iron, and manganese oxides and organic acids. The non-carbonate buffering component operates by adsorption of H^+ ions on oxides, silicates and other proton acceptors, although they all have a much lower buffering capacity than calcareous material (Kramer, 1978). The buffering capacity present in a watershed is therefore controlled by the sediment mineralogy of its bedrock and the depositional pattern of unconsolidated glacial cover (Kramer, 1976).

The headwaters for many rivers in Atlantic Canada originate in rock types that have low buffering capacity. Glacial till in most areas is relatively thin with little calcareous material present. The soils in much of the region are podzols, which have a pH ranging from 5 to 6, a low percentage of organic material and a low buffering capacity. Areas of Atlantic Canada with these characteristics are therefore particularly susceptible to acidification upon prolonged exposure to acid rain.

The proper management and study of freshwater resources in Atlantic Canada require the identification of the parts of the region that are the most sensitive to loadings of acids and also require knowledge of present pH levels. This report identifies the areas of Atlantic Canada in which resources are susceptible to damage from acidic inputs.

METHODS

To measure the relative sensitivity of surface waters to acidic degradation, a calcite saturation index (CSI) (Langelier, 1936; Larsen and Buswell, 1942; Water Quality Branch, 1980) was used. It describes the solubility of calcium carbonate and predicts the corrosive or scale-forming nature of water under varying conditions. In this study, the index is used to estimate the acidification potential of natural waters receiving acid rain. The calcite saturation index was calculated as follows:

$$\mathrm{CSI} = \mathrm{pH} + \log(\mathrm{Ca}^{++}) + \log(\mathrm{Alk}) - \mathrm{pK2} + \mathrm{pKs} - 9.3 - 2.5\,u/(1 + 5.3\,u + 5.5) \qquad (1)$$

where (Ca^{++}) is the calcium ion concentration in milligrams per litre, (Alk) is the total alkalinity in milligrams per litre as $CaCO_3$, K2 is the second dissociation constant for carbonic acid, Ks is the solubility constant for $CaCO_3$ and u is the ionic strength for the solution. The constants K2 and Ks are dependent on the temperature of the water and are calculated in each instance using the following relationships:

$$\mathrm{pK2} = 2902.4/(T + 273.2) - 6.498 + 0.02379(T + 273.2) \qquad (2)$$

$$\mathrm{pKs} = 8.37 - 1660/(T + 273.2) + 5.56 \qquad (3)$$

where T is water temperature in degrees Celsius. The ionic strength, u, is determined using the simplified relationship:

$$u = 0.000025 \times (\text{total dissolved solids}) \qquad (4)$$

This formulism implies that a negative number indicates that the water is undersaturated with $CaCO_3$ and is thus sensitive to acid precipitation. The more negative the number, the more sensitive the water.

For each individual sample at a specific location, a calcite saturation index was determined when water quality parameters necessary to perform the calculation were present. Using all of the samples available for each sampling location, an arithmetic mean and standard deviation were determined for the calcite saturation indices, and a mean and standard deviation were calculated from H^+ concentrations for all pH values.

The data used in calculating the calcite saturation index were principally obtained from the National Water Quality Data Bank (NAQUADAT) at the Water Quality Branch in Ottawa. From 1965 to the present, water quality monitoring data have been archived on NAQUADAT, with the results of each sample being stored according to specific geographical location. Surface water quality data from rivers, lakes and reservoirs representative of ambient conditions were used in calculating the calcite saturation indices. Areas influenced by tides, mine drainage and other pollution sources were excluded. Data collected before 1977 had to consist of at least three different sets before they were considered. Also, all data for a location were rejected if the standard deviation of the H^+ ion concentration was not within ten percent of the mean. This condition placed on the pre-1977 data was necessary, since analytical quality control was not as extensive before that time. All post-1977 data were accepted, and for these recent data, single samples were considered representative of the ambient water quality at a sampling location. In total, data from 575 locations throughout the Atlantic Region were selected from NAQUADAT for this study. Where all major ions were not reported in this study, the following equation (American Public Health Association, 1979) was used to estimate the value of total dissolved solids (u):

$$\text{Total dissolved solids (mg/L)} = \text{specific conductance} \times 0.5 \quad (5)$$

Most of the data available on NAQUADAT were for New Brunswick, Nova Scotia and Prince Edward Island. Water quality information for Newfoundland-Labrador was not extensive and has been supplemented in this study by information collected by Jamieson (1974, 1979) at 550 sampling locations.

As total dissolved solids are generally less than 100 mg/L throughout the fresh waters of Newfoundland-Labrador, the calculated value for total dissolved solids has little effect on the calcite saturation index.

From the mean values of pH and alkalinity calculated at each site, contours were drawn that showed areas of relative sensitivity and pH distribution, using a computerized contouring package (GPCP).

RESULTS AND DISCUSSION

Results of contouring analyses for the calcite saturation index and pH in the Atlantic Provinces are shown in Figures 1 to 6. Examination of the maps shows that the contours of pH values overlie those of CSI for all regions with few major exceptions.

Prince Edward Island and much of eastern New Brunswick are well buffered due to a red-grey sandstone bedrock rich in calcium carbonate deposits (New Brunswick Department of Natural Resources map, 1979) (Figs. 1 and 2). Northwest New Brunswick contains the least sensitive areas of the Atlantic Provinces, as it is composed of Devonian shales, limestones and Ordovician slates. The most sensitive part of New Brunswick is in the southwest where a formation of Devonian granites corresponds to very low pH and CSI values. The Lepreau River watershed occupies much of the granite area and has the lowest pH values in the Province (Water Quality Branch, 1979). Most of New Brunswick and all of Prince Edward Island have not been shown to be seriously affected by acid precipitation to date, although southwest New Brunswick appears to be very sensitive to change and could conceivably show effects in the near future.

Figures 1 and 2 also show the distributions of pH and CSI contours in Nova Scotia, respectively. The most striking aspect of both the pH and CSI maps is the extreme sensitivity of southwestern Nova Scotia surface waters coupled with corresponding low pH levels. The values down to -7 are the lowest in Atlantic Canada and are centered on a granitic area. As well, high sensitivities have been found in the highlands of Cape Breton Island in the northeast of the Province, an area composed of granite mountains. The sensitivity, however, drops off sharply to the west of the island. The rest of the Province, which has shales, sandstones and evaporites as bedrock (Nova Scotia Department of Mines map, 1965), shows little sensitivity to increasing acidity.

An examination of the bedrock geology of Newfoundland (Geological Survey of Canada map No. 1231A) reveals one of the most complex geological mixes in North America. Unfortunately, only 350 sites were sampled to cover this expanse (Jamieson, 1974), and comparably few samples were taken in the interior of the island. The resulting pH and CSI maps (Figs. 3 and 4) show a complex system of isopleths which broadly corresponds to surficial geology. As in Nova Scotia, the most sensitive areas overlie granite rock, while the least sensitive areas are in sandstone and evaporite strata.

Two hundred data points (Jamieson, 1979) were used to produce the pH and CSI maps for Labrador (Figs. 5 and 6). The surficial geology of this large area is simple, however, being composed mostly of Canadian Shield granites with little overburden. Scattered basalt outcrops occur mostly in north-central and western Labrador (Geological Survey of Canada map No. 1045A). Both the pH and CSI isopleths drawn correlate well with geology, with most of Labrador having CSI values near -4, although pH values are all above 6.0.

Based on a CSI value of -3 or less (Conroy *et al.*, 1974), much of Nova Scotia, Labrador and Newfoundland is critically sensitive to acid precipitation as is the southwest of New Brunswick, although according to Henriksen's (1979) model, Labrador and Newfoundland seem not to have been influenced yet by acid precipitation. This is reflected by the pH values of surface water, as they only reach levels known to be dangerously low for fauna in southwestern Nova Scotia, in Cape Breton and in isolated Newfoundland locations. All of New Brunswick, Prince Edward Island and Labrador show mean water pH levels higher than 5.5 and therefore, except for rare occasions, show no cause for great concern.

The CSI results correspond well with surficial geology, as was expected. Geology alone, however, cannot give an accurate estimation of the degree of sensitivity of a watershed, nor can it integrate known effects of vegetation and overburden with respect to changes in the ionic composition of rain and eventually of surface waters (Seip, 1980; Clesceri and Vasudevan, 1980). Variations of geology in a watershed also complicate interpretations of sensitivity of the watershed, so that CSI measurements only provide an improvement in defining areas sensitive to acid precipitation.

Knowledge of the location of sensitive areas can be used by managers of aquatic resources to concentrate their monitoring and protection activities where they are most needed. Such work is already in progress in southwestern Nova Scotia (Kerekes, 1980; Watt, 1981), southwestern New Brunswick (Peterson, 1980) and Newfoundland and Labrador (W. Bruce, Department of Fisheries and Oceans, personal communication).

ACKNOWLEDGMENTS

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Figures

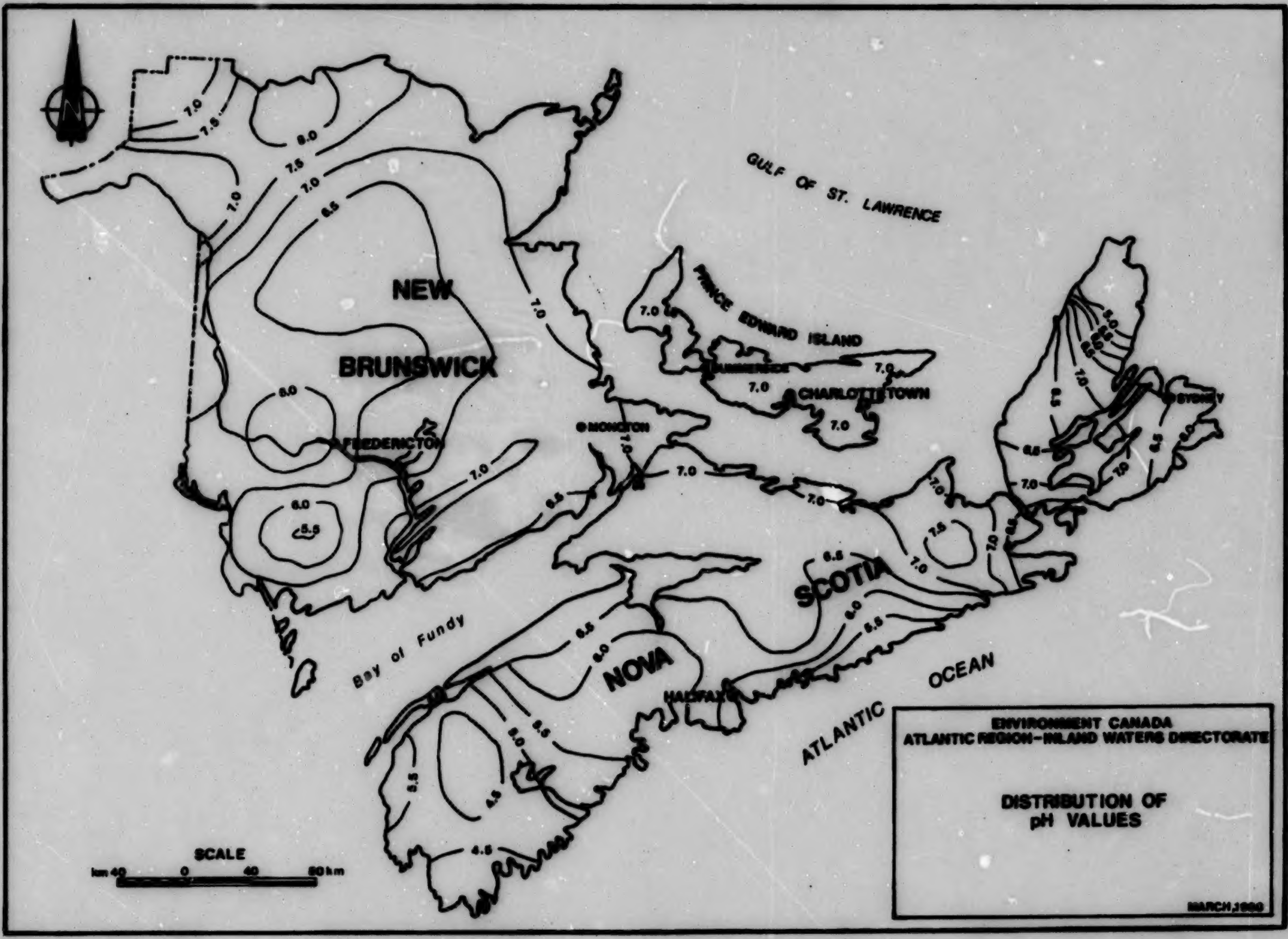
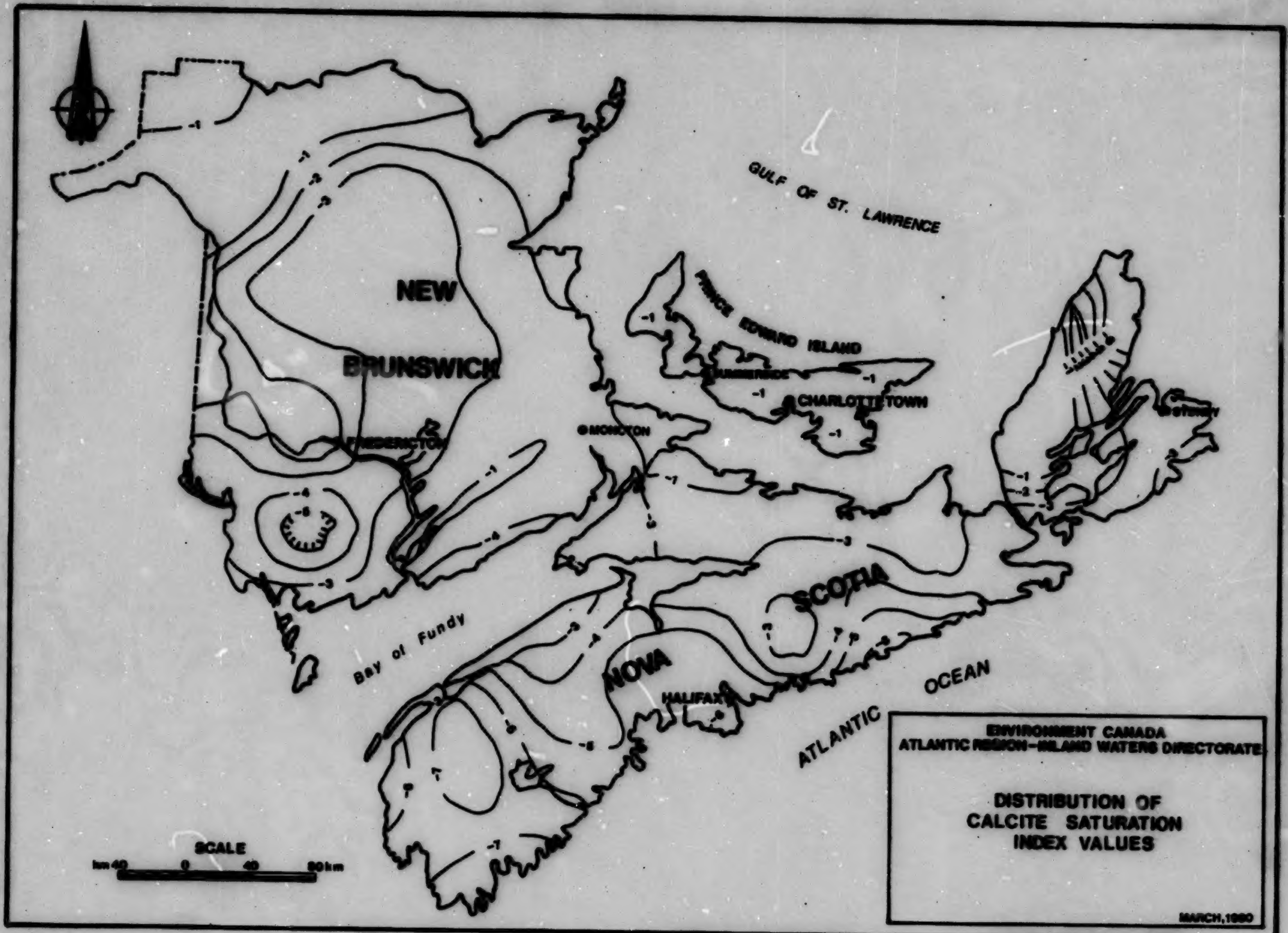

GULF OF ST. LAWRENCE
NEW BRUNSWICK
PRINCE EDWARD ISLAND
SUMMERSIDE
CHARLOTTETOWN
SYDNEY
MONCTON
FREDERICTON
HALIFAX
NOVA SCOTIA
Bay of Fundy
ATLANTIC OCEAN
7.0
7.5
8.0
6.5
6.0
5.5
5.0
4.5
SCALE
km 40 0 40 80 km
ENVIRONMENT CANADA
ATLANTIC REGION—INLAND WATERS DIRECTORATE
DISTRIBUTION OF pH VALUES
MARCH,1980

Figure 1. Isopleths showing pH distributions in New Brunswick, Nova Scotia and Prince Edward Island.


GULF OF ST. LAWRENCE
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CHARLOTTETOWN
MONCTON
FREDERICTON
SYDNEY
Bay of Fundy
NOVA SCOTIA
HALIFAX
ATLANTIC OCEAN
SCALE
km 40 0 40 80 km
ENVIRONMENT CANADA
ATLANTIC REGION–INLAND WATERS DIRECTORATE
DISTRIBUTION OF CALCITE SATURATION INDEX VALUES
MARCH, 1980
-1
-2
-3
-4
-5
-6

Figure 2. Calcite saturation index distributions in New Brunswick, Nova Scotia and Prince Edward Island.

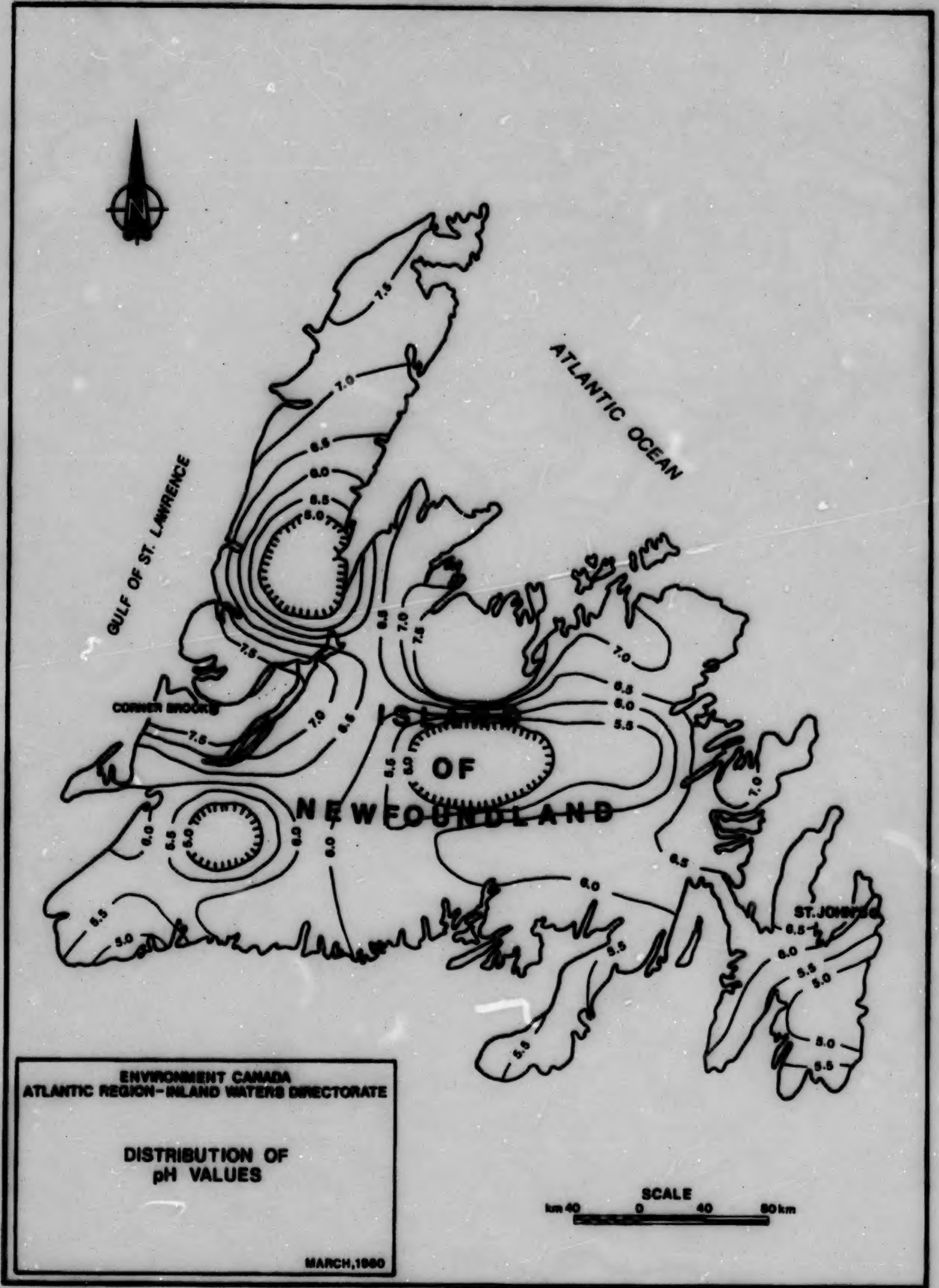
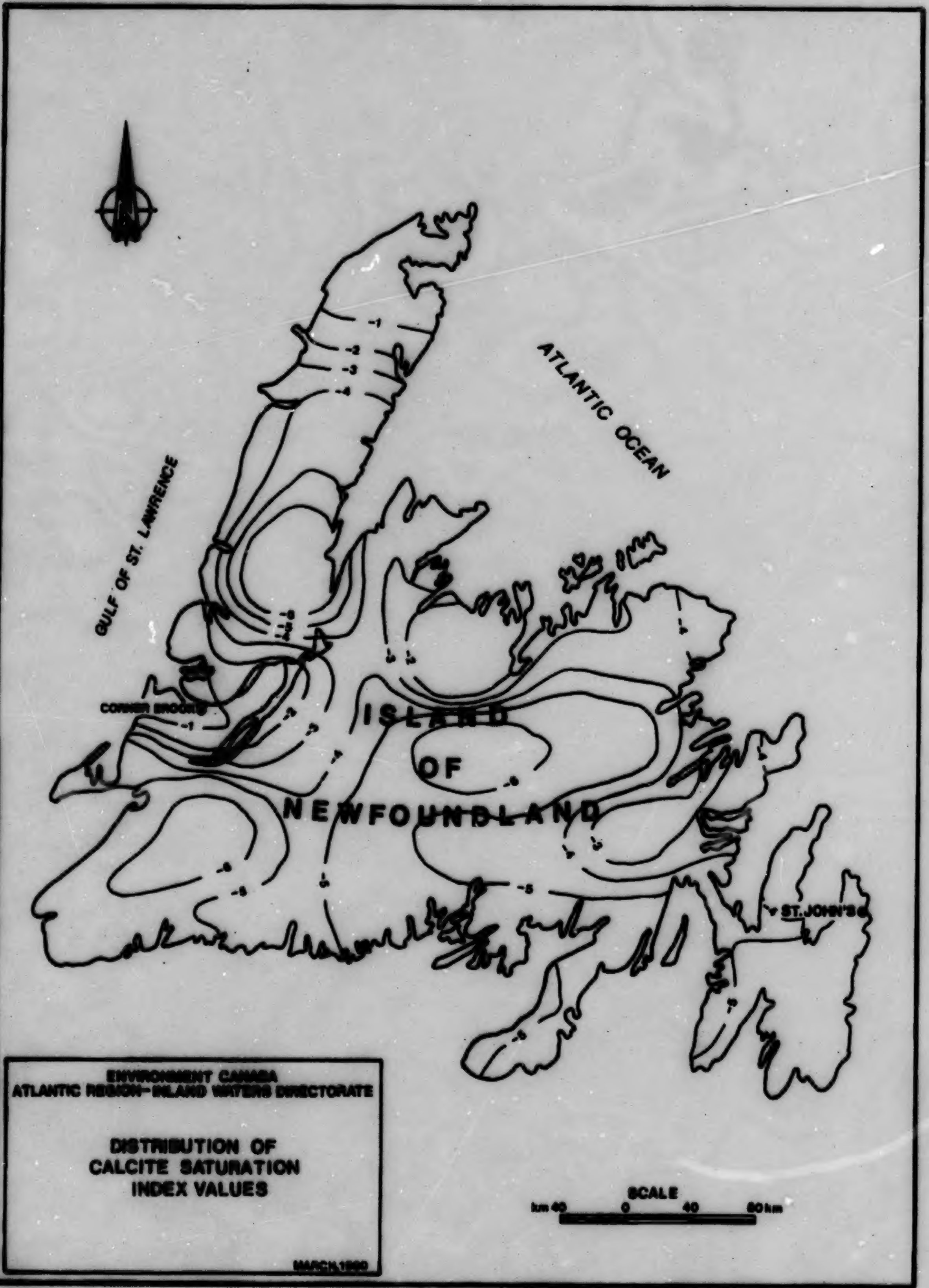

ATLANTIC OCEAN
GULF OF ST. LAWRENCE
CORNER BROOK
ISLAND OF NEWFOUNDLAND
ST. JOHN'S
7.5
7.0
6.5
6.0
5.5
5.0
ENVIRONMENT CANADA
ATLANTIC REGION-INLAND WATERS DIRECTORATE
DISTRIBUTION OF
pH VALUES
SCALE
km 40 0 40 80 km
MARCH,1980

Figure 3. Isopleths showing pH distributions in the island of Newfoundland.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ISLAND OF NEWFOUNDLAND
CORNER BROOK
ST. JOHN'S
-1
-2
-3
-4
-5
-6
-7
-1
-5
-6
-5
ENVIRONMENT CANADA
ATLANTIC REGION–INLAND WATERS DIRECTORATE
DISTRIBUTION OF
CALCITE SATURATION
INDEX VALUES
SCALE
km 40 0 40 80 km
MARCH,1980

Figure 4. Calcite saturation index distributions in the island of Newfoundland.

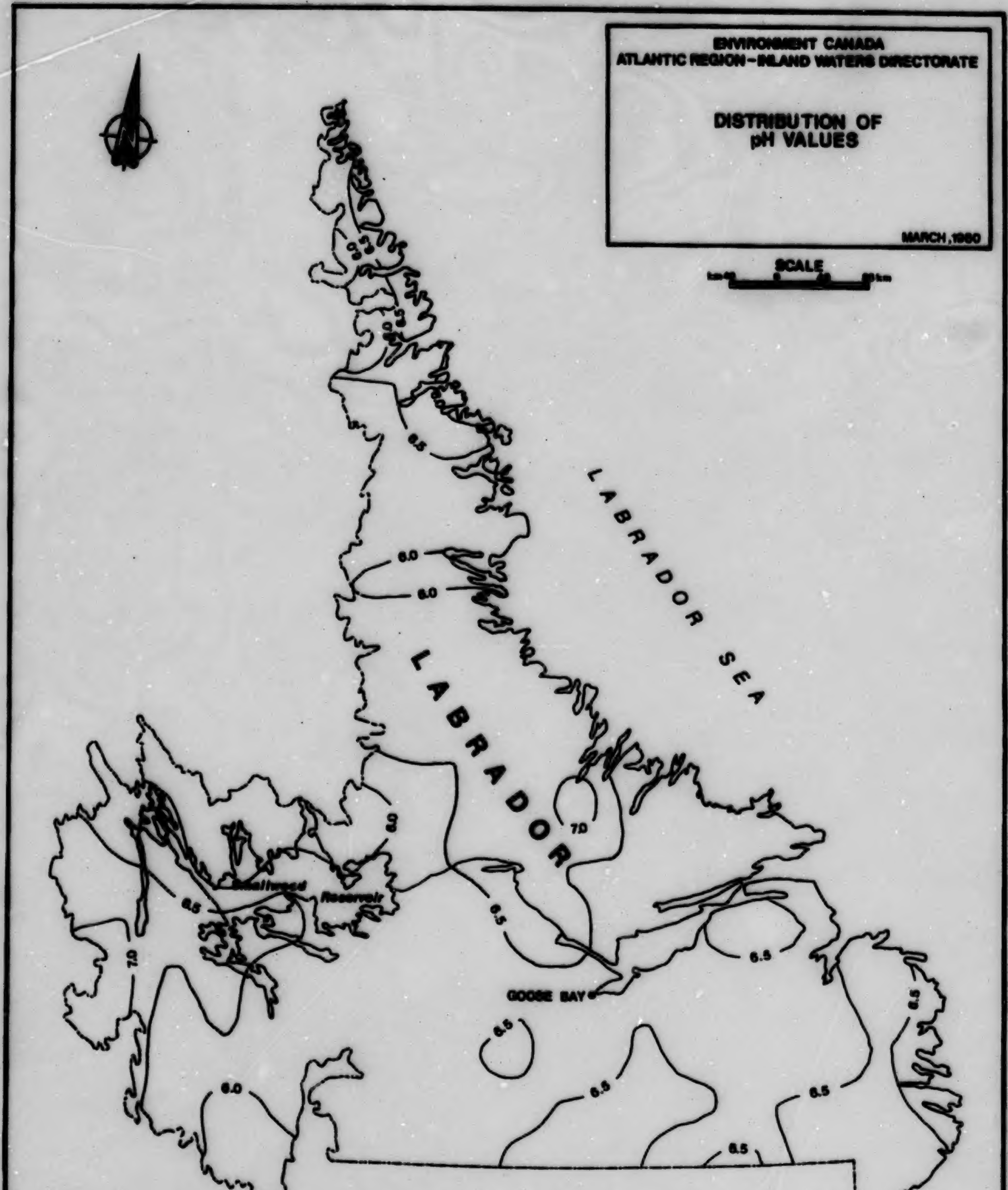
ENVIRONMENT CANADA
ATLANTIC REGION - INLAND WATERS DIRECTORATE
DISTRIBUTION OF pH VALUES
MARCH, 1980
SCALE
LABRADOR SEA
LABRADOR
Smallwood Reservoir
GOOSE BAY
6.0
6.5
7.0
6.0
6.0
6.0
6.5
7.0
6.5
6.5
6.5
6.5
6.5
6.5
6.5
6.0
6.5

Figure 5. Isopleths showing pH distributions in Labrador.

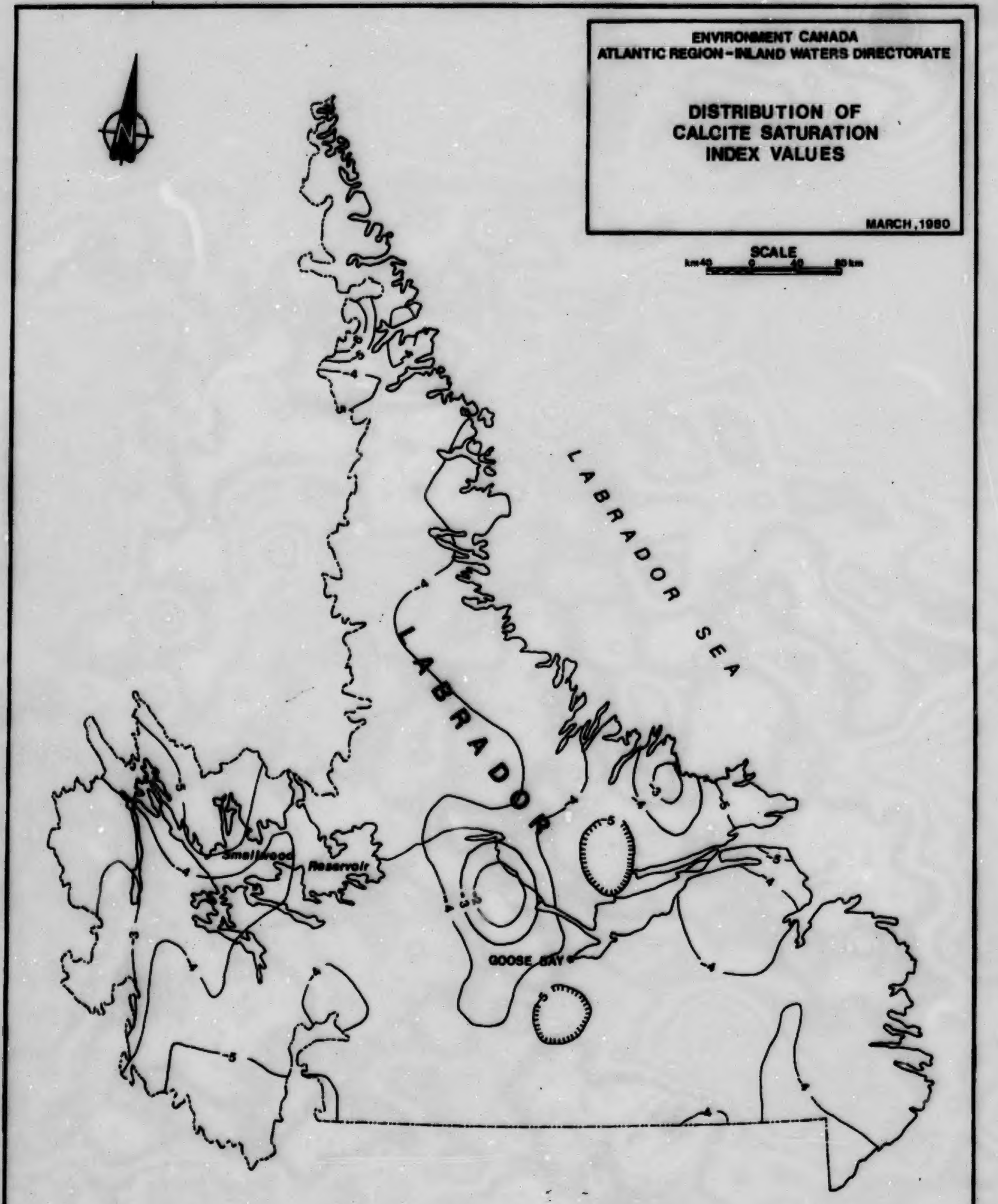
ENVIRONMENT CANADA
ATLANTIC REGION - INLAND WATERS DIRECTORATE
DISTRIBUTION OF CALCITE SATURATION INDEX VALUES
MARCH, 1980
SCALE
km 40 0 40 80 km
N
LABRADOR SEA
LABRADOR
Smallwood Reservoir
GOOSE BAY
-3
-4
-5

Figure 6. Calcite saturation index distributions in Labrador.

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Using Neural Networks to Predict pH Changes in Acidified Eastern Canadian Lakes

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ABSTRACT. Predicting changes in the pH of lakes with changes in acid precipitation is a difficult endeavor, especially in areas with high concentrations of natural dissolved organic acids, such as are found in much of eastern Canada. Statistical techniques have been used in a number of studies to try to predict changes in large areas, but cannot be used with confidence because of autocorrelation between variables. Because of the difficulties encountered with chemical and statistical techniques, we used a neural network approach to see if patterns could be detected in water chemistry data. We produced a model that was able to accurately predict the current pH of 164 lakes within 2% of measured values. We then varied lake sulphate concentration, the main acidification input to this region, to see how the lake pH would change. The neural net approach seemed more sensitive than statistical approaches in making predictions.

Acid precipitation has been recognized as an important environmental problem for much of eastern North America. Geochemical models have been used to predict changes in pH and acid neutralization capacity under various sulfate (SO_4^{-2}) concentration scenarios by a number of researchers (e.g., Thompson 1982, Dupont and Grimard 1989). However, these models are usually flawed for large parts of eastern Canada because of the large number of lakes impacted by dissolved natural organic acids that are produced by wetlands. These are natural acidifiers that can contribute up to 50% of the acidity in surface waters, while at lower pH they also act as buffering agents (amphoteric acids). Because measuring organic acid anions is difficult if not impossible with current technology, surrogate parameters have been developed to estimate organic acid influence. These, however, have a number of limitations which have been discussed in the specialist literature (e.g., Hemond 1990). Because of an inability to consistently and accurately estimate a critical component of water chemistry, the use of more rigorous geochemical models to try to predict trends in acidification with changes in acid deposition is often not practical.

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The use of statistical models to predict the pH of organic waters is also flawed. For example, Ehrman and Clair (1993) estimated statistical relationships between changes in lake sulfate (SO_4^{-2}), the main anthropogenic acidifier, and water pH in eastern Canada. This effort was hampered because not all the relevant geochemical variables could be used in multiple linear regression equations due to multicollinearity effects. As a result, model predictions produced relatively large errors from measured values.

To avoid this problem, we decided to use a neural network approach instead of more advanced statistical approaches on data from eastern Canada to see if we could better predict changes in the acidity of lakes that included a large variation in organic acid concentrations with changes in lake SO_4^{-2}. Once we had developed a model to predict current pH values, we modified SO_4^{-2} concentrations to see how lake pH values would change.

Study Area and Data Used

The lakes used were located in three of the easternmost provinces of Canada: Newfoundland, Nova Scotia, and Québec (Figure 1). The locations, biophysical information, water chemistry analytical methods, and values used in the analysis were reported by Ehrman et al. (1993) and Dubois et al. (1992). Québec receives the greatest amount of acid deposition, followed by Nova Scotia and then by Newfoundland, which is located at the easternmost point of North America.

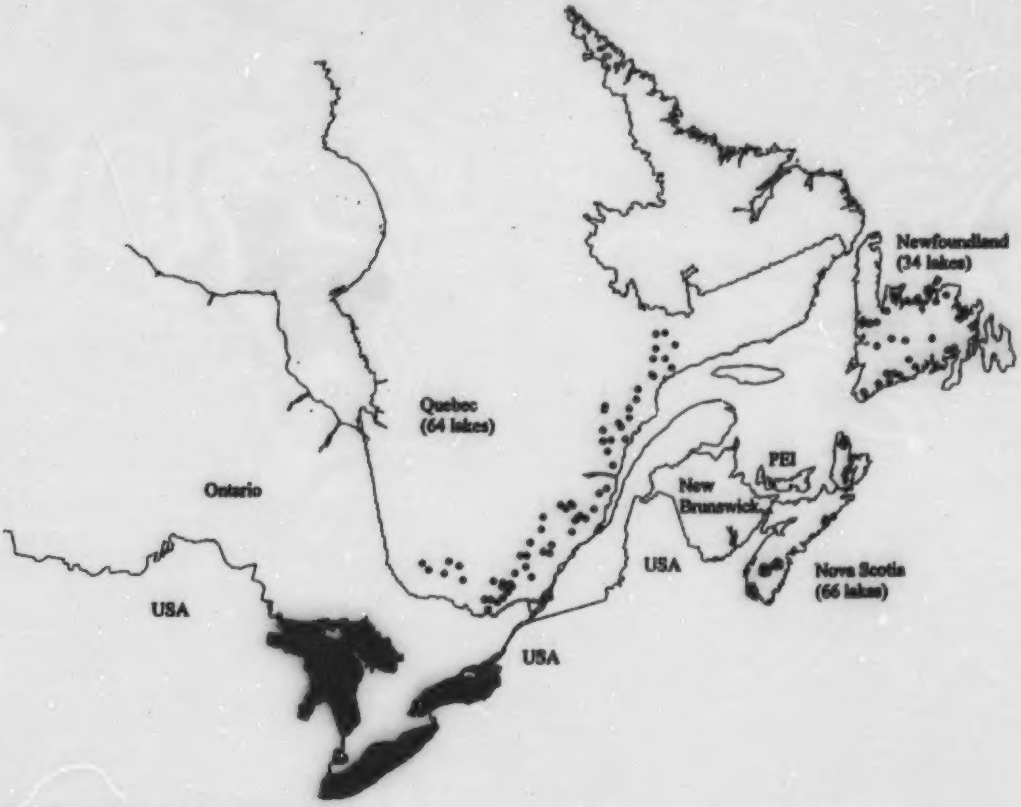

Figure 1.
Area of eastern Canada where lakes are located.

Water samples were collected from semi-annual helicopter runs to the lakes during spring and fall lake mixing periods from 1983 to 1991. The chemistry data were taken from NAQUADAT, Environment Canada's water chemistry database. Because of the large number of water samples collected (almost 3000), and because of natural variability occurring in lakes which can obscure existing patterns, the modeling exercise was done using median water chemistry values from the complete data time series of each variable for each of the 164 lakes. We felt that this simplifying of data allowed large-scale patterns to be detected.

The variables used in the analysis were: 1) pH (normalized hydrogen ion concentration); 2) acid neutralization capacity (ANC); 3) sulfate (SO_4^{-2}), mostly from deposited sulfuric acid; 4) chloride (Cl^-), an indicator of marine influence at many of the sites located in coastal regions; 5) dissolved inorganic carbon (DIC), an indicator of the ability of soils and bedrock to produce alkalinity, the major portion of ANC; 6) dissolved organic carbon (DOC), an indicator of the presence of natural organic acids; and 7) aluminum (Al), iron (Fe) and silica (Si), which are commonly found in lake waters and are controlled by basin soils and bedrock as well as DOC. The dissolution of carbonate rocks which allows the release of much of the DIC is also accompanied (to maintain electroneutrality) by calcium, magnesium, potassium, and sodium. These are corrected for the influence of seaspray effects where it is a problem, and are summed to provide a variable called base cations (C_b).

Model Development

A neural network for predicting water pH with changes in anthropogenic SO_4^{-2} was developed using Neuroshell 2 software (Ward Systems Group Inc., Frederick, Maryland, USA), a Microsoft Windows-based neural network development tool using the back-propagation learning algorithm and a single layer of hidden nodes with independent biases associated with each node. Input values were not normalized so direct manipulation of inputs could be performed to determine the response of the model to experimental variations in water chemistry values. However, Neuroshell does apply a scaling factor to inputs internally so that data values fall in the range of -1 to 1.

The data set consisted of a total of 164 lake sites, 34 sites from Newfoundland, 66 sites from Nova Scotia, and 64 sites from Québec (Figure 1). Twenty-four sites (14.6%) were randomly extracted to serve as a test set, which the software used during learning to assess the predictive power of the network and as a basis for preventing "overlearning" or memorization. An additional 12 sites (7.3%) were also randomly extracted to make up a verification set. The verification set was not used during learning and served as a measure of how well the network generalized for data that has not been seen before. To prevent memorization, Neuroshell uses a procedure termed "Net-Perfect," which periodically examines the test set during learning and calculates an average error in prediction. If the error is lower than previously encountered, the state of the network is saved as the optimum network and learning is continued.

The network consisted of the following input nodes: ANC, SO_4^{-2}, Cl^-, DOC, DIC, Al, Fe, Si, and C_b. The hidden layer consisted of a single slab of 16 nodes, the software-recommended default value. There was one output layer, pH. The input layer was associated with a linear scaling function, while the hidden and output layers used logistic activation functions. The network was trained for approximately one hour and 1500 epochs, to an overall error of 0.00017 with comparison to the optimum network every 500 learning events. At this time, a steady increase in overall error rate for the test set was noticed (overlearning), and learning was discontinued. The test and verification sets were not reincorporated into the training set for further learning.

Following development of the model, pH values for all sites were predicted after adjusting lake SO_4^{-2} concentrations by -75, -50, -25, +25 and +50%. While changing SO_4^{-2}, we also simultaneously adjusted ANC values to reflect the decrease in acid input by increasing these values to maintain electroneutrality. This compensation was based on the electroneutrality equation:

$$C_b - C_a = ANC = [HCO_3^-] + [CO_3^{-2}] + [Or^-] - [H^+]$$

where C_b is the sum of the weathered cations; C_a is the sum of the acid anions (Cl^-, nitrate (NO_3^-) which is neglected in our analysis as it is usually very low; and SO_4^{-2}), HCO_3^- and CO_3^{-2} are bicarbonate and carbonate respectively from DIC, Or^- is the organic anion component, and H^+ is the hydrogen ion concentration. Changes in SO_4^{-2} will change ANC unless compensated for by C_b, the base cations. In the highly geologically resistant terrains of eastern Canada, we have considered that this is unlikely to occur because of already low weathering rates (Clair 1992). ANC was therefore varied in an equivalent 1:1 proportion with SO_4^{-2}.

Limnological Conditions

Table 1 summarizes the range of pH values from lakes sampled in each of the three main regions. We can see that though Nova Scotia receives approximately half the deposition of Québec (Clair et al. 1995), this region nevertheless has 29% of its sites with pH values in the 4 to 5 range. This is because of the presence of natural organic acids which tend to depress lake pH and because of the poor neutralizing capacity of its soils and bedrock. Most Québec lakes are found in the pH 5 to 7 range, though a few, located on calcareous bedrocks in the extreme western portion of the study region, have values greater than 7. No lakes in Nova Scotia and Newfoundland have elevated pH values, and no Newfoundland sites have values below 5.

Variables used in our analysis are summarized in Table 2. We noted from the ANC data that Québec lakes, especially in the western portion, are better buffered against acidification than either Nova Scotia or Newfoundland sites. This is reflected in the pH values, even though Québec waters have SO_4^{-2} concentrations almost three times those of Nova Scotia and more than four times the amount in Newfoundland. The higher base cation (C_b) and ANC amounts in Québec waters also confirm that weathering is greater in this region than in the other two. Despite higher weathering in Québec, Fe concentrations were greater in Nova Scotia and Newfoundland, most likely because of the higher DOC levels in waters from these regions, as DOC is a well-known complexer of metals.

Our analysis also did not take into account the influence of NO_3^- on the acidity of water. Nitrate was not used in developing the model because, in the lakes sampled, it was rarely above detection levels. However, NO_3^- is present in low quantities and can be measured under conditions of high runoff. Its effect on the pH of the lakes may be enough to keep pH slightly lower than it otherwise would be if only SO_4^{-2} was involved.

Results and Discussion

We re-estimated pH from input variables and found that absolute average errors in predictions were 1.61% for all cases, 1.44% for the training set, 2.02% for the test set, and 2.65% for the verification set (Figure 2). Overall, the model produced an R^2 value of 0.9712 and MSE of 0.014. These results led us to conclude that the model is a reasonable predictor of lake water chemistry pH.

Model results confirmed that reduced SO_4^{-2} concentrations would significantly reduce lake acidification, even in lakes that were already naturally acidic. Over all sites (Figures 3a, b, c, d), reductions of 25, 50, and 75% of SO_4^{-2} were shown to shift the median pH of lakes into higher value cat-

Table 1. *Distribution of pH values in the three study region lakes. Values in brackets are the percent distribution of the lakes in each category.*

Region	pH 4 to 5	pH 5 to 6	pH 6 to 7	pH 7 to 8	Total
Québec	1 (2)	30 (47)	25 (39)	8 (13)	64
Nova Scotia	19 (29)	33 (50)	14 (21)	0 (0)	66
Newfoundland	0 (0)	19 (56)	15 (44)	0 (0)	34
Total	20 (12)	82 (50)	54 (33)	8 (5)	164

egories. Regionally, a reduction of acid deposition to pre-industrial conditions (roughly 75% reduction, as some SO_4^{-2} is naturally found in the atmosphere), would lead to the greatest shift in lake quality in Québec, with no lakes predicted for the pH 4 to 5 range, a 26.6% reduction in lakes pH 5 to 6, and a 31.1% increase in lakes from 6 to 7.

An interesting prediction occurs in the pH shift of the Québec lakes in the 7 to 8 pH range. The model actually predicts a decrease in pH with a decrease in SO_4^{-2}. This result is not as counterintuitive as it initially seems. Kilham (1982) has shown that in lake basins containing high levels of carbonate rock, high levels of acid rain increase weathering of bedrock which then produces bicarbonate, the strongest natural buffering agent. Conversely, a reduction of acidification will therefore reduce weathering of carbonates and actually decrease pH values. The lakes showing reduced pH with reduced acidification are all located on easily weatherable bedrock in eastern Québec and tend to confirm Kilham's (1982) hypothesis.

The shift in Nova Scotian lakes to pre-acidification conditions would cause a 19.7% reduction in lakes in the pH 4 to 5 range, and a 21.2% in-

Table 2. *Summary statistics for the major variables in each of the three Provinces. All values are in mequivalents per litre, except for pH, DIC (mmoles/L) and DOC (mg/L). Base cations (C_b) were corrected for seasalt in the Nova Scotia and Newfoundland data.*

		Quebec	**Nova Scotia**	**Newfoundland**
ANC	mean	75.2	11.8	30.2
	range	-11.9 to 547	-43 to 105	-3.3 to 112
pH		6.1	5.5	6
		4.8 to 7.4	4.3 to 6.7	5.2 to 6.7
SO_4^{-2}		91.7	39.6	21.1
		25 to 215	11 to 93	12 to 47
Cl		11.5	161.2	75.2
		5.6 to 22.6	62 to 430	33.8 to 197.4
DIC		91.2	22.5	39.3
		8.3 to 639	10 to 126	11 to 139
DOC		4.1	6	5.6
		1.8 to 8.7	1.3 to 16	1 to 14
C_b		194	71.4	85.8
		32 to 894	11 to 195	21 to 228
Fe		2.1	5.3	6.6
		0.6 to 35	0.3 to 29.1	0.5 to 21.8

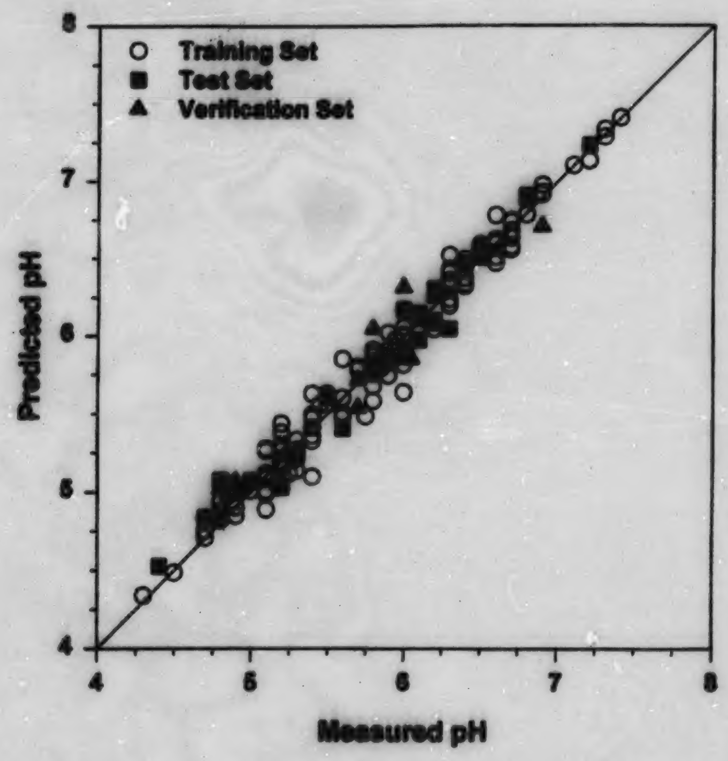

Figure 2.
Plot showing predictions of water pH for the lakes. Open circles are the lakes used in the training set, shaded boxes are the sites used for testing model development, and dark triangles are the predictions for sites not used in either model development or testing.

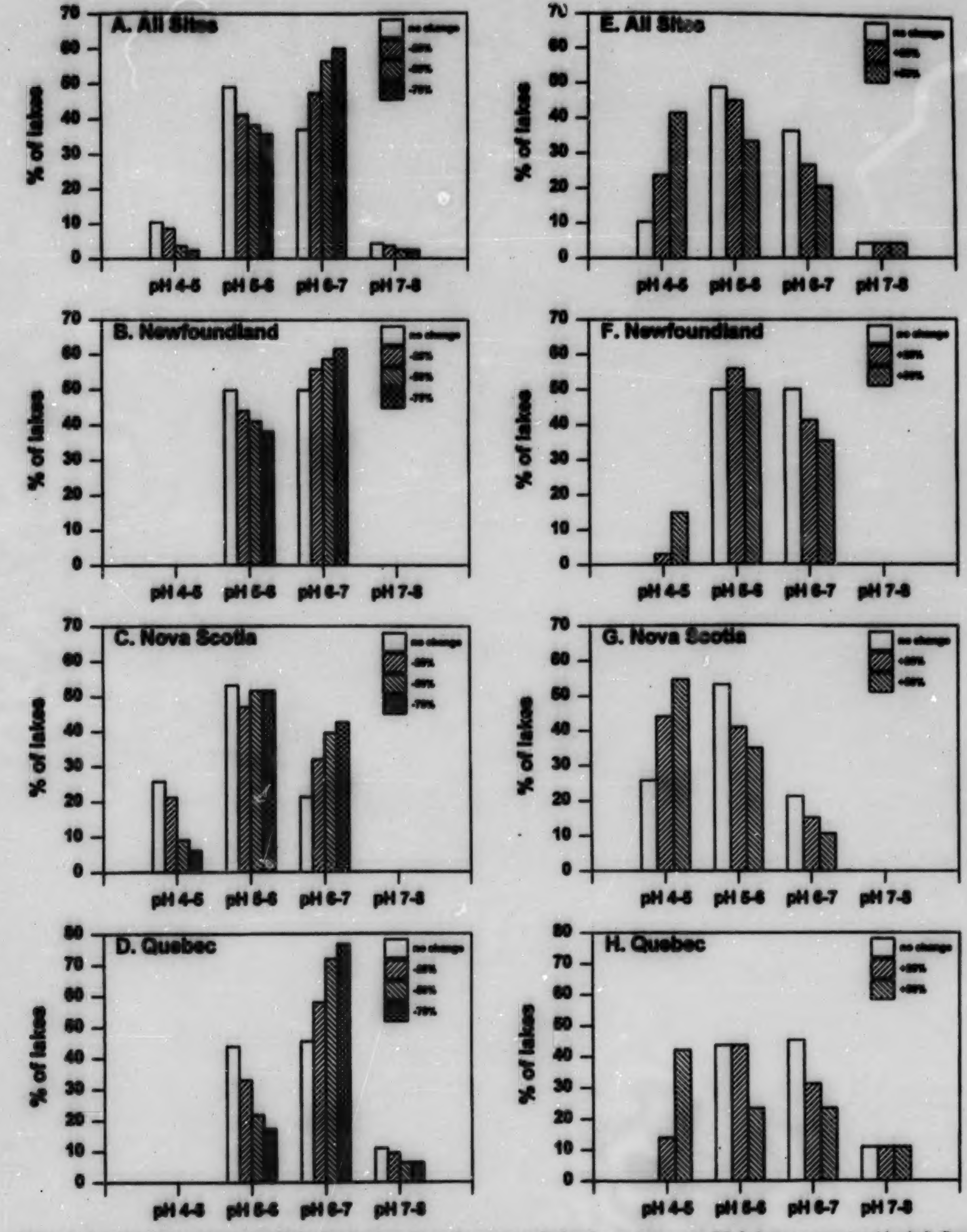

Figure 3. *Actual (white) and predicted lake distributions for each region studied under various water SO_4^{-2} change scenarios (shaded). Panels A, B, C, and D show reduction predictions, while E, F, G, and H show SO_4^{-2} increase predictions.*

crease in the 6 to 7 range (Table 3, Figure 3c). The model predicts a smaller shift occurring in Newfoundland, with an 11.8% decrease in pH 5 to 6 sites, compensated by an 11.8% increase in pH 6 to 7 lakes (Table 3, Figure 3b).

Increases in SO_4^{-2}, on the other hand (Table 3, Figures 3e,f,g,h), would have important consequences to the pH distribution of lakes. A 50% increase in SO_4^{-2} would increase the proportion of lakes in the pH 4 to 5 range by 42.2% and reduce the proportion of lakes with relatively high pH (6 to 7) by 14.1%. Nova Scotia would also show a 28.8% increase in pH 4 to 5 lakes, while Newfoundland would show a 14.7% increase in this category, balanced by a complementary decrease in the pH 6 to 7 group.

We compared our neural net model results with predictions made previously using other methods. Ehrman and Clair (1993) developed a multiple linear regression model using the same data from Nova Scotia and Newfoundland and found differences between statistical model predictions and actual measured pH values for their lakes to be off by an average of 3.1%, compared to 1.61% using our neural network approach. Bouchard (1994) also applied a combined geochemical-statistical approach to Québec lakes and found that the average difference between measured and calculated pH was 2.5%, which was also inferior to the neural net results.

In comparing the neural network model to the two statistical approaches, we noted that though the direction of changes predicted did not differ, the predicted magnitude of these changes was usually greater using the neural network. For example, the statistical model predicted that a 50% SO_4^{-2} increase would not shift any Newfoundland lakes from pH 5-6 to pH 4-5, while the neural model predicted a 14.7% increase in these sites. The statistical prediction for Nova Scotia was also more conservative, as it suggested a 10% increase in pH 4 to 5, compared to 28.8% for the neural net prediction.

The situation with the Québec predictions was similar to those of Nova Scotia and Newfoundland. The neural and statistical models estimated that a 50% increase in SO_4^{-2} would lead to increases of 42.2% and 9% to lakes in the pH 4-5 group respectively. However, the predictions of the two models for SO_4^{-2} reductions in Québec were relatively similar.

Table 3. *Neural net prediction of percent change from current pH ranges due to SO_4^{-3} adjustments, compared to predictions made with no adjustment (nc denotes no change; values in parentheses indicate percent change from 0%).*

	Neural net prediction (%)			
-25% SO_4^{-3}	4-5	5-6	6-7	7-8
Nova Scotia	-4.6	-6.0	+10.6	nc
Newfoundland	nc	-5.8	+5.8	nc
Québec	nc	-10.9	+12.5	-1.6
-50% SO_4^{-3}				
Nova Scotia	-16.7	-1.5	+18.2	nc
Newfoundland	nc	-8.8	+8.8	nc
Québec	nc	-21.9	+26.6	-4.7
-75% SO_4^{-3}				
Nova Scotia	-19.7	-1.5	+21.2	nc
Newfoundland	nc	-11.8	+11.8	nc
Québec	nc	-26.6	+31.3	-4.7
+25% SO_4^{-3}				
Nova Scotia	+18.2	-12.1	-6.1	nc
Newfoundland	+2.9	+5.9	-8.8	nc
Québec	+14.1	nc	-14.1	nc
+50% SO_4^{-3}				
Nova Scotia	+28.8	-18.2	-10.6	nc
Newfoundland	+14.7	nc	-14.7	nc
Québec	+42.2	-20.3	-14.1	nc

We have shown that the neural network can simulate starting pH values better than either of the two statistical methods, which suggests that the model predictions are probably also better. The net seems to correlate well with results for the sophisticated statistical-geochemical model developed on the Québec data, especially when predicting decreases in SO_4^{-2}. Neural net predictions for the Atlantic sites are more extreme than the simple multivariate approach, however, and this may be a function the more limited variable sets which could be used in the multivariate models.

We have identified a number of advantages and disadvantages to the use of neural nets in this study. The main advantage is that the approach allows the inclusion of all available chemical and physical inputs, thereby producing a more inclusive model. The approach can easily accommodate new information such as a new data set or more variables, which may not fulfill statistical criteria, with little or no loss of predictive power for the original data. The main disadvantage to neural nets is that no cause-effect relationship can be established, but this is also the case when using statistics.

Our work shows that neural networks can be used to predict lake pH changes with changes in acid inputs. The approach seems to give better predictions of actual values compared to statistical or geochemical approaches and is more sensitive to changes of input variables. The method does not allow us to understand underlying geochemical processes occurring, but an evaluation of the importance of the input variables as well as some predictions that could be considered counterintuitive (but have some basis in theory) suggests that the model is allowing us to produce realistic predictions.

Acknowledgments

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Regional precipitation and surface water chemistry trends in southeastern Canada (1983–1991)

T.A. Clair, P.J. Dillon, J. Ion, D.S. Jeffries, M. Papineau, and R.J. Vet

Abstract: We analyzed for trends of acidification related variables from 1983 to 1992 in precipitation concentrations and deposition at six sites and surface water concentrations at 111 sites located from central Ontario to eastern Newfoundland. Precipitation showed significantly decreasing H^+ and SO_4^{2-} concentrations and deposition in central and eastern Ontario and at one of two sites in Québec (deposition only). For Ontario surface water sites, only increasing or stable SO_4^{2-} trends were observed, and these had both concomitant increasing and decreasing trends for pH and (or) acid-neutralizing capacity (ANC). Despite a considerable number of lakes showing decreasing SO_4^{2-} trends in Québec, pH and ANC also decreased. Québec was also the only region showing extensive evidence of increasing NO_3^-. The opposite situation was observed in Atlantic Canada lakes where despite increasing SO_4^{2-}, the dominant trend observed for pH and ANC was increasing. Trends observed for pH and ANC were used to classify the acidification status of our surface water sites: 60 of the 111 sites were found to be stable (i.e., showing no trends), 17 were continuing to acidify, and 34 were improving.

Résumé : Nous avons analysé les tendances temporelles monotones de variables chimiques reliés à l'acidification pour les concentrations et les dépôts des précipitations à six sites et pour les concentrations chimiques des eaux de surface à 111 sites répartis du centre de l'Ontario jusqu'à l'est de Terre-Neuve. Les précipitations ont montré des diminutions significatives des concentrations et des dépôts de H^+ dans le centre et dans l'est de l'Ontario et à un des deux sites du Québec (seulement les dépôts). Pour les sites d'eau de surface de l'Ontario uniquement, l'absence de tendances ou des augmentations de concentrations de SO_4^{2-} ont été observées et, dans deux cas, étaient accompagnées d'augmentations ou de diminutions concomitantes du pH et (ou) de la capacité neutralisant d'acide (CNA). En dépit du nombre considérable de lacs du Québec montrant des diminutions des concentrations de SO_4^{2-}, le pH et la CNA diminuaient aussi. Le Québec était également la seule région montrant une évidence considérable d'augmentations des concentrations de NO_3^-. La situation est inversée pour les lacs des provinces atlantiques où, en dépit des hausses de SO_4^{2-}, la tendance dominante observe pour le pH et la CNA était une augmentation. Les tendances observées pour le pH et la CNA ont été utilisées pour classer l'état d'acidification de nos sites d'eau de surface : 60 des 111 lacs étaient stables (i.e., ne montrant aucun tendance), 17 ont continué de s'acidifier et 34 se sont améliorés.

[Traduit par la Rédaction]

Introduction

East of the Ontario–Manitoba border and south of 52°N latitude, Canada has more than 700 000 lakes considered sensitive to acidification based on geological characteristics and atmospheric sulphate (SO_4^{2-}) deposition (Jeffries 1991; Hélie et al. 1993). In the early 1980s, a number of monitoring programs commenced (e.g., Bouchard and Haemmerli 1992; Clair et al. 1992) to provide information for assessing

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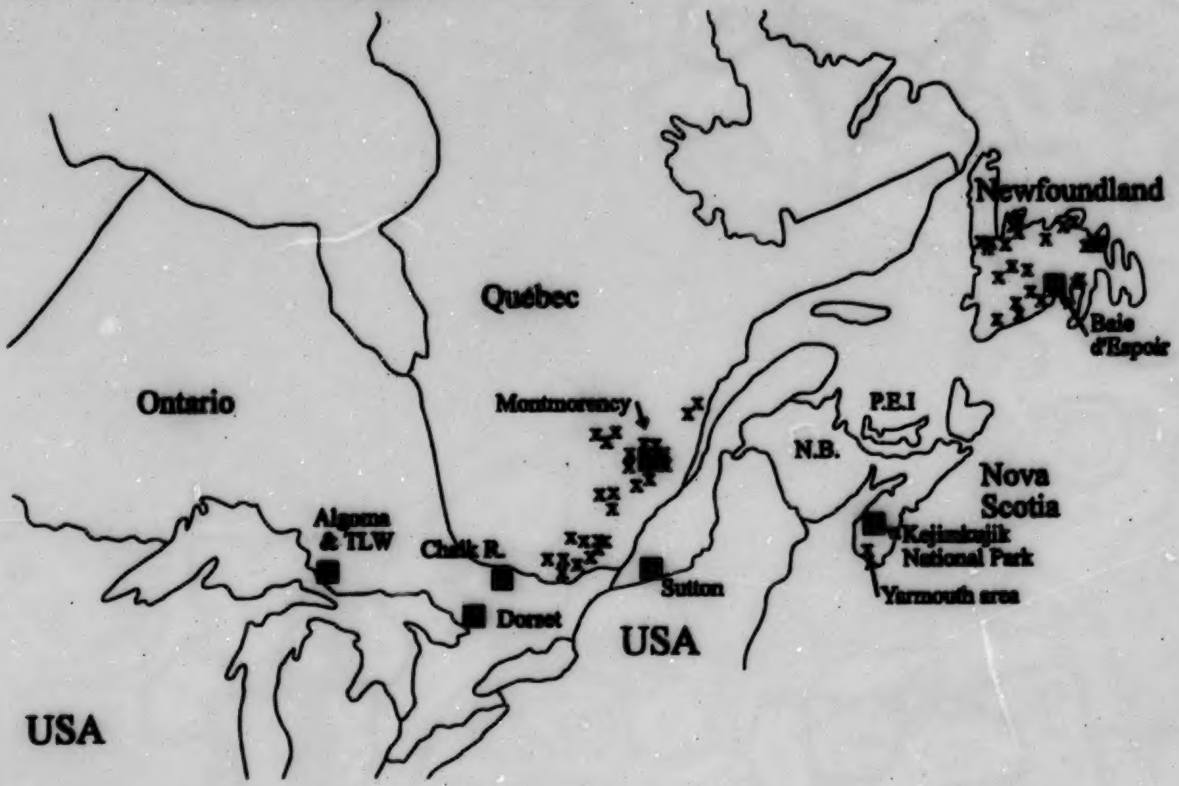


Fig. 1. Location of study sites. Precipitation sites are named.

the effect of acid deposition and in the change of the acid deposition rate on surface water quality. Intensive watershed monitoring was established at several sites also, e.g., the "calibrated watersheds" at Turkey Lakes in central Ontario (Jeffries et al. 1988), Harp and Plastic lakes in south-central Ontario (Dillon and LaZerte 1992), Lac Laflamme in southern Québec (Papineau 1987), and Kejimkujik watersheds in Nova Scotia (Kerekes and Freedman 1989).

An important objective of the aquatic monitoring programs is to document changes in water chemistry resulting from changes in SO_2 emissions. For example, in the Sudbury region of Ontario, Dillon et al. (1986) and Keller et al. (1992) reported decreases in lake SO_4^{2-} and increased pH and acid-neutralizing capacity (ANC) following reductions in local SO_2 emissions in the late 1970s. A similar pattern was reported by Kelso et al. (1992) in the Algoma region of central Ontario, although it was unrelated to the changes at Sudbury. In Nova Scotia, Sirois and Summers (1989) observed a downward trend in precipitation SO_4^{2-} from May 1979 to December 1987 consistent with SO_2 emission trends in upwind regions, and Clair et al. (1992) have shown an upward trend in ANC and pH for Nova Scotia and Newfoundland lakes over the period 1983–1989.

Because the networks used to monitor changes in surface water chemistry were established by different organizations with different priorities, no attempt has been made to conduct a unified evaluation of trends across southeastern Canada. Moreover, the regional studies that do exist typically used different statistical methodologies applied over differing time periods which complicates interregional comparisons. Sirois (1993) did use a single methodology to analyze trends in precipitation chemistry over eastern North America, but his work did not include a comparative analysis of trends in surface water quality. Hence the question remains as to whether these regional trends in precipitation chemistry are reflected in the chemistry of aquatic ecosystems.

Our work remedies these shortcomings by using a consistent statistical methodology to characterize trends in both precipitation and surface water chemistry over the period 1983–1991 at selected sites in Ontario, Québec, Nova Scotia, and Newfoundland. This facilitates intersite comparisons and evaluation of relationships that may exist between changes in atmospheric deposition and changes in surface water chemistry. We intend to produce a "snapshot" of how regional water chemistry has varied during a recent 9-year period over the large area of southeastern Canada that receives elevated levels of acidic deposition.

Study area

Water chemistry data were obtained for 111 sites: 11 stations in Ontario, 29 in Québec, 38 in Nova Scotia, and 33 in Newfoundland (Fig. 1). Precipitation chemistry data were taken from six CAPMoN (Canadian Air and Precipitation Monitoring Network) stations that spanned southeastern

Canada. They were located near water monitoring sites: Algoma (located at Turkey Lakes) and Chalk River in Ontario, Montmorency (located at Lac Laflamme) and Sutton in Québec, Kejimkujik in Nova Scotia, and Bay d'Espoir in Newfoundland (Vet et al. 1989).

The 11 Ontario water sites included two stream stations from the Turkey Lakes Watershed (TLW; Turkey Lake outflow (TO) and Batchawana Lake outflow (BO)) near Sault Ste Marie, seven streams from the Harp Lake catchment (HP; six inflows and one outflow), and two streams from the Plastic Lake catchment (PC; one inflow and one outflow) near Dorset. The TLW is situated on silicate bedrock (greenstones and granites) overlain by glacial tills that are generally <1–10 m thick. The soils are mostly ferrohumic and humoferric podzols that have a small carbonate content (0–2%), particularly at low elevations (Jeffries et al. 1988). Bedrock in the HP catchment is granitized biotite and hornblende gneiss, about 50% of which is covered by glacially deposited sandy and sandy loam tills varying from >1 to 10 m in thickness (Dillon et al. 1987; Scholer et al. 1990). The PC catchment has orthogneiss bedrock overlain by shallow (<1 m) sandy basal tills. The soils are mostly podzols or gleysols. Inflow streams drain wetlands that are either sphagnum–conifer swamps or shallow beaver ponds (Dillon et al. 1987, 1991; Dillon and LaZerte 1992). All Ontario sites are within the Great Lakes – St. Lawrence forest region.

The 29 Québec lakes chosen for this study included the Lac Laflamme calibrated watershed (LLW, "Montmorency" on Fig. 1) and 28 headwater lakes belonging to Environment Canada's Québec temporal monitoring network. The lakes are all on the Canadian Shield and situated in subregions 1–5 of the eight subregions defined by Bouchard (1992, 1993) for southern Québec. Bedrock geology is generally characterized by slowly weathering igneous rock (anorthosite, gabbro, granite, and syenite) and metamorphic rock (gneiss, paragneiss, amphibolite, and quartzite) except in the southwestern part of Québec, where the irregular occurrence of limestone, marble, and anorthosite leads to higher median ANC and Ca^{2+} and Mg^{2+} in the lakes (Dupont 1992). Soils are largely humoferric podzols. The lakes are situated in boreal forest (Bouchard's subregions 1–3) or mixed forest (subregions 4 and 5).

Seventy-one lakes from Environment Canada's Atlantic region monitoring network were selected for this study. Most of them are headwater lakes. Of the 38 Nova Scotia sites, 27 are located in Kejimkujik National Park (KEJ) and 11 are in the southwestern portion of the province near Yarmouth. The 33 Newfoundland lakes are more evenly distributed throughout the island (Fig. 1). For a more complete description of the Atlantic region network, see Clair and Esterby (1991) and Ehrman et al. (1993).

Geology of the Atlantic region is heterogeneous. Surficial geology in KEJ includes the slate-derived, well-drained sandy loams found in the Kejimkujik drumlins (Simmons et al. 1984), as well as granitic till and peaty organic deposits (Kerekes and Freedman 1989). Soils in the Yarmouth area are mostly shallow, stony, and sandy loams derived from quartzite and schist. A mixed forest type generally predominates throughout this part of Nova Scotia. Newfoundland geology includes greywacke, quartzite, gneiss, slate, schist, and granite (Howell 1986) overlain by coarse to medium textured glacial tills and humoferric podzols (Roberts 1983). Typical boreal forest occurs throughout the northern half of Newfoundland, while the south-central and southeastern part of the island is largely barren and dominated by dwarf shrub heaths, bogs, and fens. Many lakes in both Nova Scotia and Newfoundland are highly coloured due to drainage from organic deposits located in low relief, sphagnum-dominated basins.

Methods

Monthly data covering the period 1983–1991 were obtained for precipitation depth, average pH, and volume-weighted mean concentration and deposition of H^+, seasalt-corrected SO_4^{2-}, NO_3^-, and Ca^{2+} + Mg^{2+} (Ca+Mg) from the Atmospheric Environment Service (AES) for the six CAPMoN stations (wet deposition only). A full description of the CAPMoN sampling protocol, analytical methods, etc., can be found in the annual summary reports (e.g., Vet et al. 1989).

Surface water samples were collected concurrently with a frequency of at least once per week (TLW, HP, PC, and LLW), six times per year (nine Québec sites), or twice a year during spring and fall overturn (remaining 20 Québec and all 71 Atlantic sites). Sampling protocols for Ontario sites, Québec network lakes, and Atlantic network lakes are documented in Locke and Scott (1985), Papineau (1987), Dubois et al. (1992), and Clair et al. (1992), respectively.

Samples collected at the TLW, Québec, and Atlantic sites were analyzed in Environment Canada laboratories for the full spectrum of major ions using standard procedures. Here, we will report results for pH (measured potentiometrically in the laboratory), ANC (Gran titration), SO_4^{2-} (ion chromatography or colorimetry if the sample colour was negligible), NO_3^- (NO_3^- + NO_2^-, also by ion chromatography or colorimetry), Ca+Mg (atomic absorption), and colour (Hazen procedure). HP and PC samples were analyzed at the Dorset Research Centre using similar methods (OME 1983). Applicable variables from Atlantic region lakes were corrected for the seasalt contribution (Clair et al. 1992).

Because coloured waters are common in Atlantic Canada (Ehrman et al. 1993), analyses of water in the Atlantic monitoring program routinely include dissolved organic carbon (DOC). DOC contains carboxylic functional groups which usually contribute to acidity so that at higher concentrations, the more naturally acidic the water. While DOC permits a more precise quantification of organic acidity than colour, a methodological change for DOC in the middle of the sampling period caused a shift in values which confused the statistical analysis. As the colour method remained the same throughout, we used this variable as a surrogate for DOC in the trend analysis. Should there be significant changes in colour, it may signify that changes in pH are due to natural rather than anthropogenic causes.

Prior to the statistical analysis, all data were validated by ion balancing, comparison of measured versus calculated conductivities, and outlier analysis. Both the federal and OME laboratories participated in Environment Canada's Long Range Transport of Air Pollutants interlaboratory quality assurance program.

Table 1. Decision tree used by DETECT to select which nonparametric test was used for trend analysis.

Persistence	Seasonality	Selected test	Reference
No	No	Kendall	Hirsch et al. 1982
No	Yes	Kendall seasonal	Hirsch et al. 1982
Yes	No	Spearman/Lettenmaier	Lettenmaier 1976
Yes	Yes	Hirsch and Slack	Hirsch and Slack 1984

Table 2. Summary of monotonic trends identified for precipitation depth, wet-only concentration, and deposition from six CAPMoN monitoring stations from eastern Canada for the period 1983–1991. The data were combined into 2-month intervals prior to statistical analysis. "EV" indicates a trend influenced by an extreme value.

Station	Precipitation depth	pH	H^+ concn.	H^+ dep.	SO_4^{2-} concn.	SO_4^{2-} dep.	NO_3^- concn.	NO_3^- dep.	Ca^{2+} concn.	Ca^{2+} dep.	Mg^{2+} concn.	Mg^{2+} dep.
Algoma	↔	↑	↓	↓	↓	↓	↔	↔	↔	↔	↔	↑
Chalk River	↔	↑	↓	↓	↓	↓	↔	↔	↓	↓	↔	↓
Montmorency	↔	↔	↔	↓	↔	↓	↔	↔	↔	↔	↔	↔
Sutton	↔	↔	↔	↔	↔	↔	↔	↔	↓	↔	↓	↔
Kejimkujik	↔	↔	↔	↔	↔	↔	↔	↑	↔	↔	↔	↔
Bay d'Espoir	↔	↔	↔	↔	↔	↔	↑	↑	↓ (EV)	↓ (EV)	↔	↔

Monotonic trend analyses were carried out on all precipitation and surface water variables using the DETECT software package (Cluis 1988; Cluis et al. 1989) and a null hypothesis of no change. DETECT chooses one method from a suite of nonparametric procedures depending on whether or not there is seasonality and (or) persistence in the data (Berryman et al. 1988). The methods and their selection criteria are summarized in Table 1. Seasonality is present when the means of predefined seasons (see below) are found to be different using an analysis of variance. Persistence, or serial correlation, represents a carryover of information from one observation to the next. It is unlikely to occur for water samples collected more than 1 week apart because of the highly dynamic nature of aquatic systems. Nevertheless, if DETECT identified statistical persistence, it was considered when choosing the method. A trend was significant when its probability of chance occurrence was below 5% ($\alpha = 0.05$). Trend magnitude was estimated using linear regression.

Early on, it was recognized that monotonic trend analysis of the Ontario SO_4^{2-} data might be problematic due to the effect of drought in several of the records (Dillon and LaZerte 1992) (e.g., see the record for Harp Lake inflow No. 4 (HP4) in Fig. 7, later in this paper). Therefore, a Mann–Whitney step trend procedure (Berryman 1984) that is also available as part of the DETECT package was applied to the 11 surface water records from Ontario.

Prior to running the analysis, DETECT allows the user to define seasonal intervals (e.g., monthly, bimonthly, quarterly, etc.). Monthly precipitation data and the data for Ontario and temporal Québec sites were grouped into bimonthly intervals. Data from spatial Québec and Atlantic sites were analyzed with a 6-month interval. If insufficient data were available to form a specified interval (e.g., due to missing data or removal of outliers), the missing interval was replaced with the mean seasonal value calculated for the whole time period. NO_3^- and colour values below the limit of detection (LOD) were replaced by a value equalling two thirds of the LOD.

Results

Precipitation quantity and chemistry in southeastern Canada

Among the six precipitation sites studied, Chalk River received the lowest precipitation amounts (≈80 cm/year), followed by Sutton, Algoma (≈130 cm), Montmorency, Kejimkujik (≈140 cm), and Baie d'Espoir (≈150 cm) (Fig. 2). With the exception of Sutton, 1987 was the driest year for every station. Most of the stations exhibited cyclical dry/wet year patterns. The exception was Chalk River where annual precipitation remained relatively constant throughout the study period. There were no significant trends in precipitation quantity at any site (Table 2).

SO_4^{2-} and H^+ deposition were greatest at the Ontario and Québec sites; the two Atlantic sites receive approximately half of that measured at Algoma and Sutton (Figs. 2 and 3). Significant increases in pH and decreases in H^+ deposition and concentration were observed for Algoma and Chalk River, while at Montmorency in Québec, only a decreasing H^+ deposition trend was found. Decreasing H^+ deposition was accompanied by decreased SO_4^{2-} deposition and (or) concentration at all three of these stations. No trends in precipitation H^+ or SO_4^{2-} concentration or deposition were observed at Kejimkujik or Baie d'Espoir.

The most common pattern in yearly SO_4^{2-} deposition exhibited by Algoma, Montmorency, and Bay d'Espoir was a reduction in deposition between 1983 and 1987 followed by a lesser, irregular increase. Chalk River showed a more steady decrease in SO_4^{2-} deposition over the period

Fig. 2. Annual precipitation (lines) and SO_4^{2-} deposition (bars) for the six CAPMoN stations. Note the differing vertical scales for deposition. SO_4^{2-} deposition in Atlantic Canada is approximately half that in Ontario and Québec.

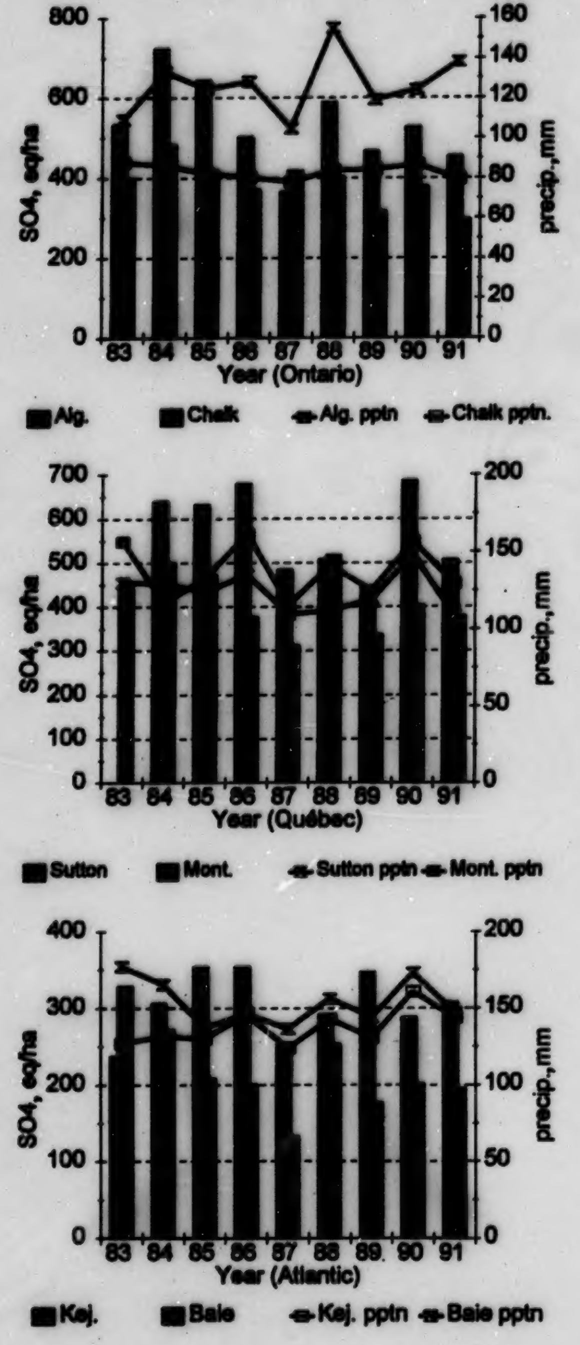
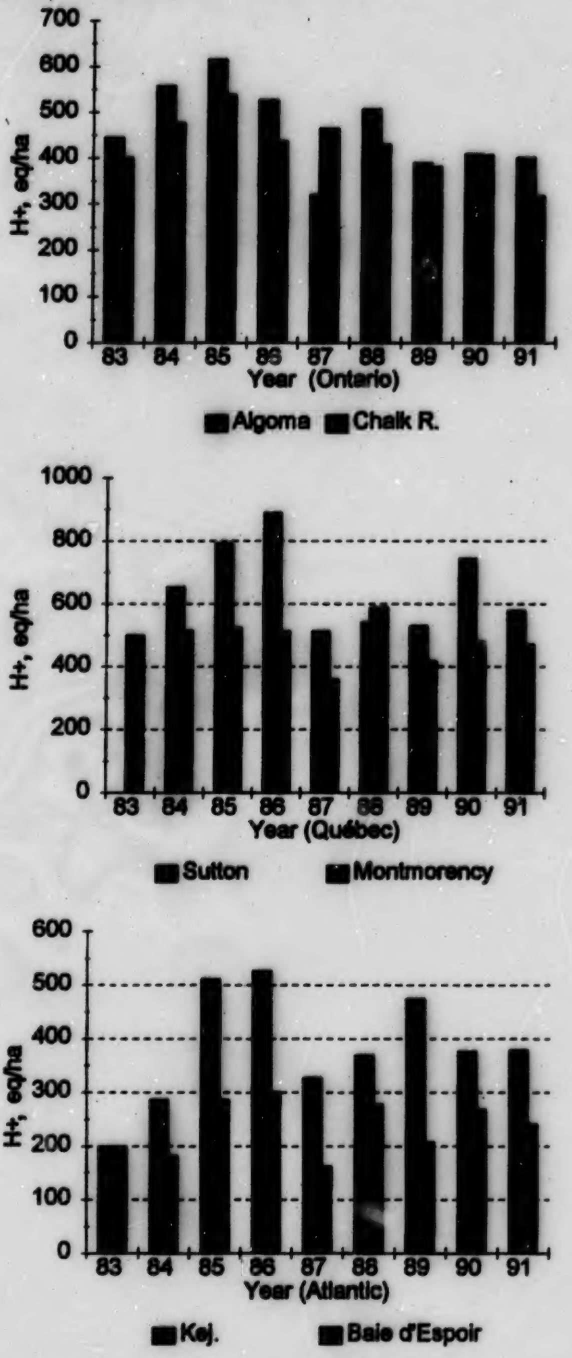
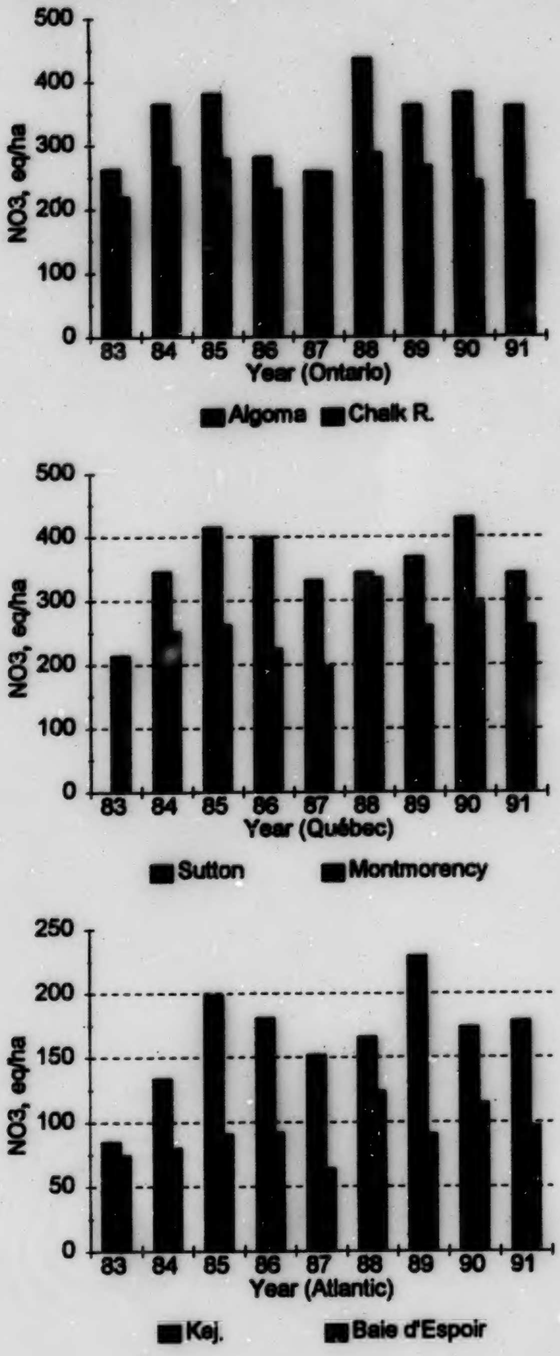


Fig. 3. Annual H^+ deposition for the six CAPMoN stations. Note the differing vertical scales.



1984–1991. Significantly decreasing SO_4^{2-} trends at Chalk River, Algoma, and Montmorency (Table 2) gave 1991 SO_4^{2-} deposition levels that were 26, 15, and 14% lower than those in 1983, respectively. SO_4^{2-} deposition at Sutton station exhibited a step change between the periods 1984–1986 and 1987–1991. At Kejimkujik, increases in SO_4^{2-} deposition between 1987 and 1989 gave levels at the end of the record that were almost the same as those in 1984; hence, the lack of detected trends for the entire period (Table 2).

Fig. 4. Annual NO_3^- deposition for the six CAPMoN sites. Note the differing vertical scales.



The temporal pattern of H^+ deposition followed that for SO_4^{2-} in Ontario and Nova Scotia (Fig. 3). The significantly negative trends in H^+ deposition found at Chalk River, Algoma, and Montmorency (Table 2) resulted in 1991 deposition levels that were 21, 10, and 6% lower than those in 1984, respectively. Significant increases in precipitation NO_3^- concentration were found at both Atlantic stations but not in Ontario or Québec (Fig. 4, Table 2).

With only one exception, precipitation base cation (Ca^{2+} or Mg^{2+}) concentration and deposition showed either no trend or a downward trend (Table 2). The decreasing trend in Ca^{2+} identified for Baie d'Espoir was influenced by one extremely high value in 1984 that may have been due to contamination. When this value was removed, no trend was detected.

Regional lake chemistry

The water quality of lakes sampled for this present study was compared with that reported by Jeffries (1991) for a much larger, regional subset of eastern Canadian lakes (Table 3). Our Nova Scotia and Ontario subsets were slightly more acidic (lower pH and ANC), while the Québec subset was less acidic than the larger set of lakes. As expected, lake SO_4^{2-} levels were highest in Ontario and lowest in Newfoundland, a pattern consistent with regional differences in deposition. SO_4^{2-} deposition is generally highest in southern Ontario, southern Québec, and southern New Brunswick, with lesser deposition occurring in regions west, north, and east of these areas (RMCC 1990). Highest Ca+Mg concentrations were found in Ontario.

In our data set, median NO_3^- was 11 μeq/L (range of station medians = 0.7–28) for Ontario and 1.4 μeq/L (range of station medians = 0.5–3.2) for Québec. Higher NO_3^- levels in Ontario compared with Quebec probably reflect relatively lower N retention in the TLW (Jeffries et al. 1986) and some HP watersheds (Dillon et al. 1991). Most NO_3^- concentrations in Atlantic Canada lakes were below the LOD.

Median colour in Nova Scotia and Newfoundland was 58 (sample range = 5–420) and 30 (range = 5–220) Hazen units, respectively. No colour data from Ontario and Québec were included in this study.

Lake chemistry trends

Analyses of data series using a 2-month sampling interval (i.e., all 11 Ontario sites and 9 of 29 Québec sites) found many cases of seasonality and persistence. In Ontario, all sites except HP6A exhibited seasonality for every variable, while persistence was found at nine sites for pH, SO_4^{2-}, and Ca+Mg and at approximately 50% of the sites for ANC and NO_3^-. Seasonality was common only for Ca+Mg and NO_3^- in the nine Québec lakes. Similarly, persistence was less prevalent in Québec than in Ontario, being found for eight of the nine lakes for pH and five of nine lakes for SO_4^{2-}.

All the remaining data series from Québec (i.e., for 20 lakes) plus those from Nova Scotia and Newfoundland used a 6-month sampling interval. Approximately half of the lakes in Québec and Newfoundland exhibited seasonality for ANC, with a higher proportion for Ca+Mg and much lesser proportions for the remaining variables. In Nova Scotia, approximately one third of the data series had seasonality for pH, ANC, Ca+Mg, and colour. The number of cases of persistence found in the data was surprisingly high given the twice-yearly sampling frequency. Occurrence of persistence was greatest (i.e., one third to one half of the lakes) for Ca+Mg in Québec and Newfoundland,

Table 3. Comparison of regional median pH, ANC, SO_4^{2-}, and Ca+Mg from this study and the larger regional database reported by Jeffries (1991). Regional abbreviations: ONT = Ontario, QUE = Québec, NS = Nova Scotia, NF = Newfoundland, SC ONT = south-central Ontario, NE ONT = northeastern Ontario. SO_4^{2-} and Ca+Mg are seasalt-corrected for NS and NF.

Parameter	This study				Jeffries 1991				
	ONT	QUE	NS	NF	SC ONT	NE ONT	QUE	NS	NF
pH	5.8	6.5	5.2	6.1	6.3	6.9	6.2	5.4	6.2
ANC, μeq/L	42	98	2	34	61	166	52	14	28
SO_4^{2-}, μeq/L	150	110	39	20	156	142	94	50	31
Ca+Mg, μeq/L	217	173	38	66	194	383	163	53	79

while a somewhat lower proportion was found for pH, ANC, and Ca+Mg in Nova Scotia. The relatively high incidence of persistence in our data probably is not environmentally relevant; however, it is important to keep persistence in mind when evaluating the identified trends, since it requires the use of lower powered tests (Berryman et al. 1988) that may fail to identify trends discernible by other methods.

Preliminary examination of the trend magnitudes showed little consistency among lakes, even those lakes that were spatially proximate. Moreover, significant trends for variables that should complement each other (e.g., pH and ANC) were not detected at the same site in some cases (see below). Given these observations, we consider quantitative assessment of trend magnitudes to be of limited value at this time. Therefore, although we will note a few trend magnitudes to give an impression of what was observed, we will emphasize the results for trend direction in the discussion that follows.

Ontario lake chemistry trends

The complexity of the changes observed in pH is illustrated by the responses of streams at Harp Lake. Two sites (one inflow and the outflow) exhibited increasing pH trends, while three other lake inflows showed decreasing pH trends. For the 9-year period, the magnitude of the greatest pH decrease was from 6.0 to 5.7 units at Harp Inflow No. 3 (HP3, Fig. 5), while the pH increases were 0.3 unit at both Harp Outflow (HPO, Fig. 5) and HP5. No pH trends were detected at TLW.

Three increasing ANC trends were found in Ontario: TO (from 56 to 66 μeq/L), HPO (from 51 to 69 μeq/L), and HP5 (from 28 to 77 μeq/L, Fig. 6). The trends observed at the two Harp Lake sites were consistent with the increasing pH trends. Similarly, the significant ANC decrease at HP6 (from 76 to 48 μeq/L) was consistent with a significant pH decline. However, the ANC trend at TO was not matched by a significant trend in pH, and the pH declines at HP3 and HP6A were not accompanied by significant change in ANC.

As noted above, SO_4^{2-} data from the Ontario sites were analyzed using a step trend procedure and they showed either no trend or increasing trends. Increasing trends were detected at five locations: three Harp Lake inflows (including HP4, Fig. 7), Plastic Lake inflow (PC1), and BO in the TLW.

Base cations (i.e., Ca+Mg) in Ontario remained unchanged (seven sites) or significantly increased (TO, HP4, HP6, and HPO), with magnitudes of the increases ranging from 17 to 190 μeq/L over the 9-year period (Fig. 8). Two of the sites with increasing Ca+Mg had increasing ANC (TO and HPO), one had increasing SO_4^{2-} and NO_3^- (HP4), and one had decreasing ANC and pH but increasing SO_4^{2-} (HP6).

NO_3^- increased at one Ontario site (HP4, from 107 to 124 μeq/L) and decreased at another (HP3, from 11.7 to 5.9 μeq/L); the remainder showed no significant NO_3^- trend.

Québec lake chemistry trends

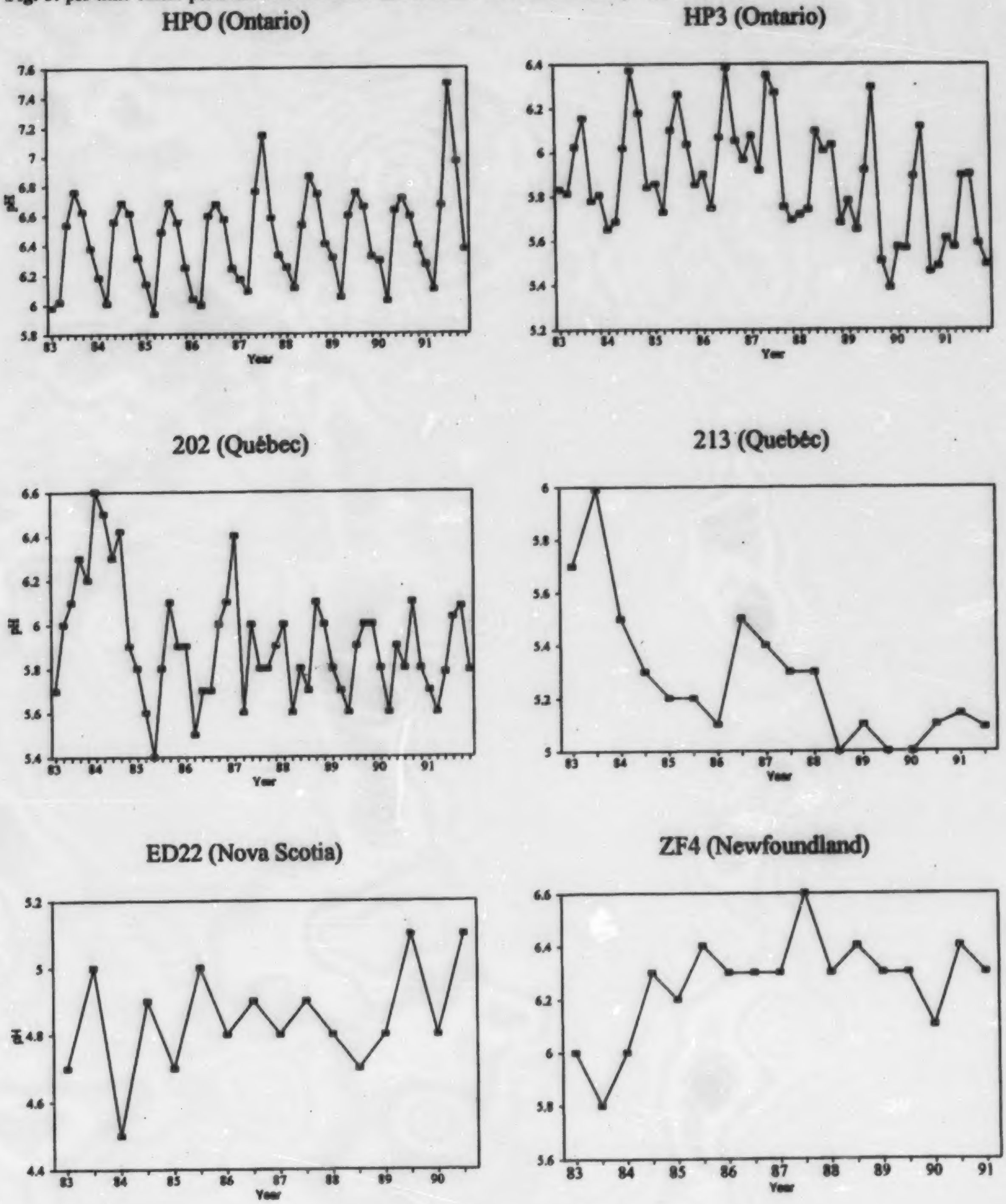
Five pH decreases were observed in the 29 Québec lakes, with no increases. The magnitude of the decreases ranged from 0.6 pH unit at Lake 213 (final pH = 5.0) to 0.3 unit at Lake 511 (final pH = 7.4). While there were no sites in Québec that had increasing ANC, compared with pH there was double the number of lakes (10) exhibiting significant ANC declines over the 9-year period (between 4.1 and 140 μeq/L).

Given the observed declines for pH and ANC, it was surprising that 14 lakes showed decreasing SO_4^{2-} trends, while only one had an increasing trend. The magnitude of the decrease was greatest for eight lakes in southwest Québec, ranging from 18 to 53 μeq/L. SO_4^{2-} decreases for the six lakes in other parts of the province ranged from 7.1 to 32 μeq/L. Several lakes also showed a reversal in the pattern of SO_4^{2-} concentrations, i.e., declining in the early 1980s and increasing in the late 1980s, thereby leading to no overall trend (e.g., Lake 101 in Fig. 7). Seven of the 14 Québec lakes showing SO_4^{2-} decreases also had significantly decreasing pH and (or) ANC. The remaining seven lakes had no associated pH or ANC trend.

Thirteen significant trends for Ca+Mg were detected in Québec, of which six were increases (from 4.7 to 27 μeq/L) and seven were decreases (from 7.5 to 161 μeq/L). Of the seven lakes with downward trending Ca+Mg, simultaneous trends for anions included: three lakes exhibiting ANC declines, two lakes in which both ANC and SO_4^{2-} decreased, and one with only SO_4^{2-} and another with only NO_3^- declining. Of the six lakes with upward trending Ca+Mg, three did not have accompanying trends for any other variables, two had both increasing SO_4^{2-} and NO_3^-, and one had only NO_3^- increasing.

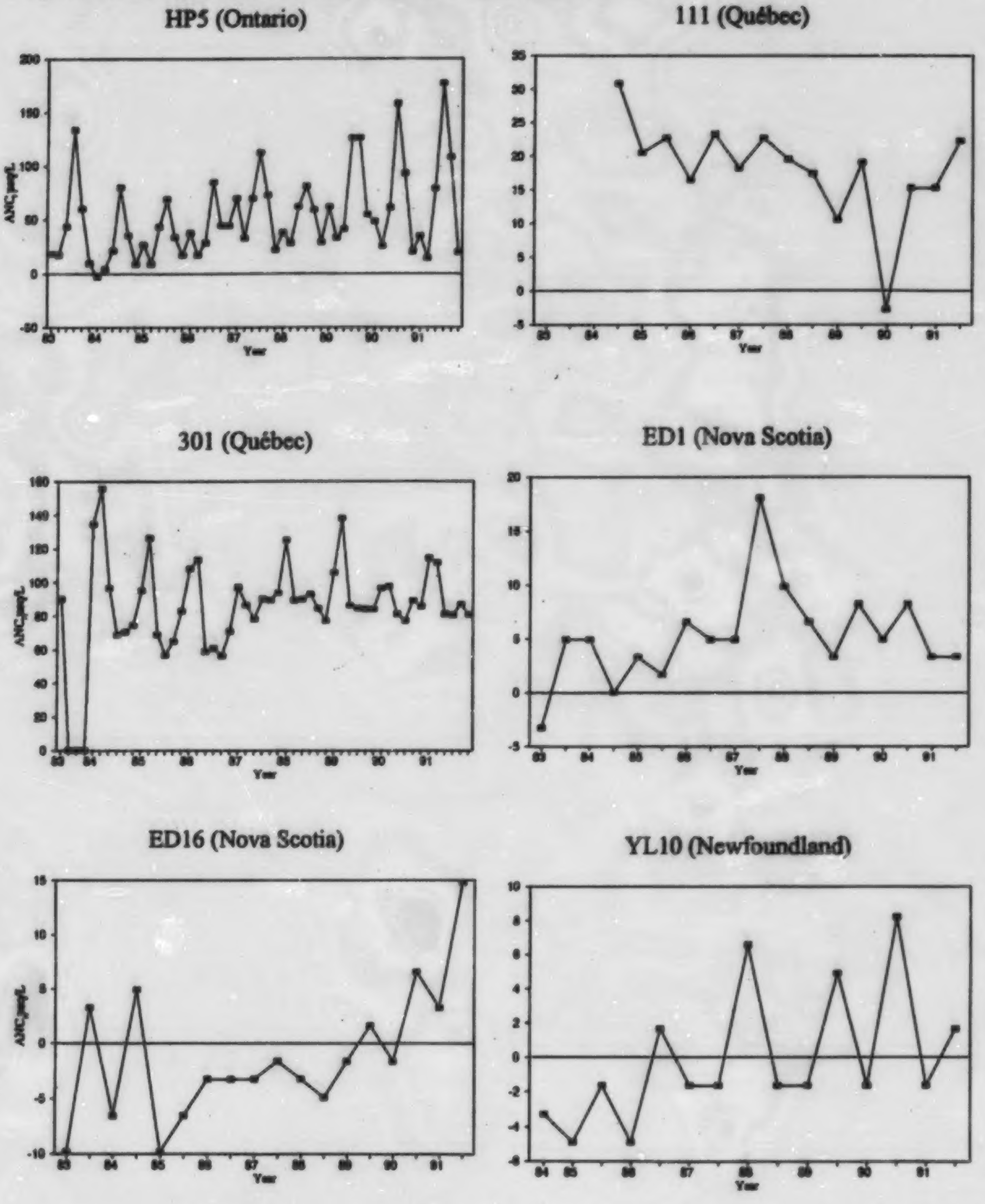
Québec was the only region where several significant trends in NO_3^- were detected. These included increases in

Fig. 5. pH time series plots for selected lakes and streams. Note the differing vertical scales.



11 lakes (ranging from 6 to 37 μeq/L over 9 years) and very small decreases in two lakes. These trends are consistent with the increasing concentration of NO_3^- in precipitation reported by Couture (1993) and Sirois (1993) at Montmorency for the period 1981–1989/90, although as reported above, our analysis of the complex pattern of NO_3^- in precipitation from 1983 to 1991 failed to detect a significant trend in Québec.

Fig. 6. ANC series plots for selected lakes. Note the differing vertical scales.



HP5 (Ontario)

111 (Québec)

301 (Québec)

ED1 (Nova Scotia)

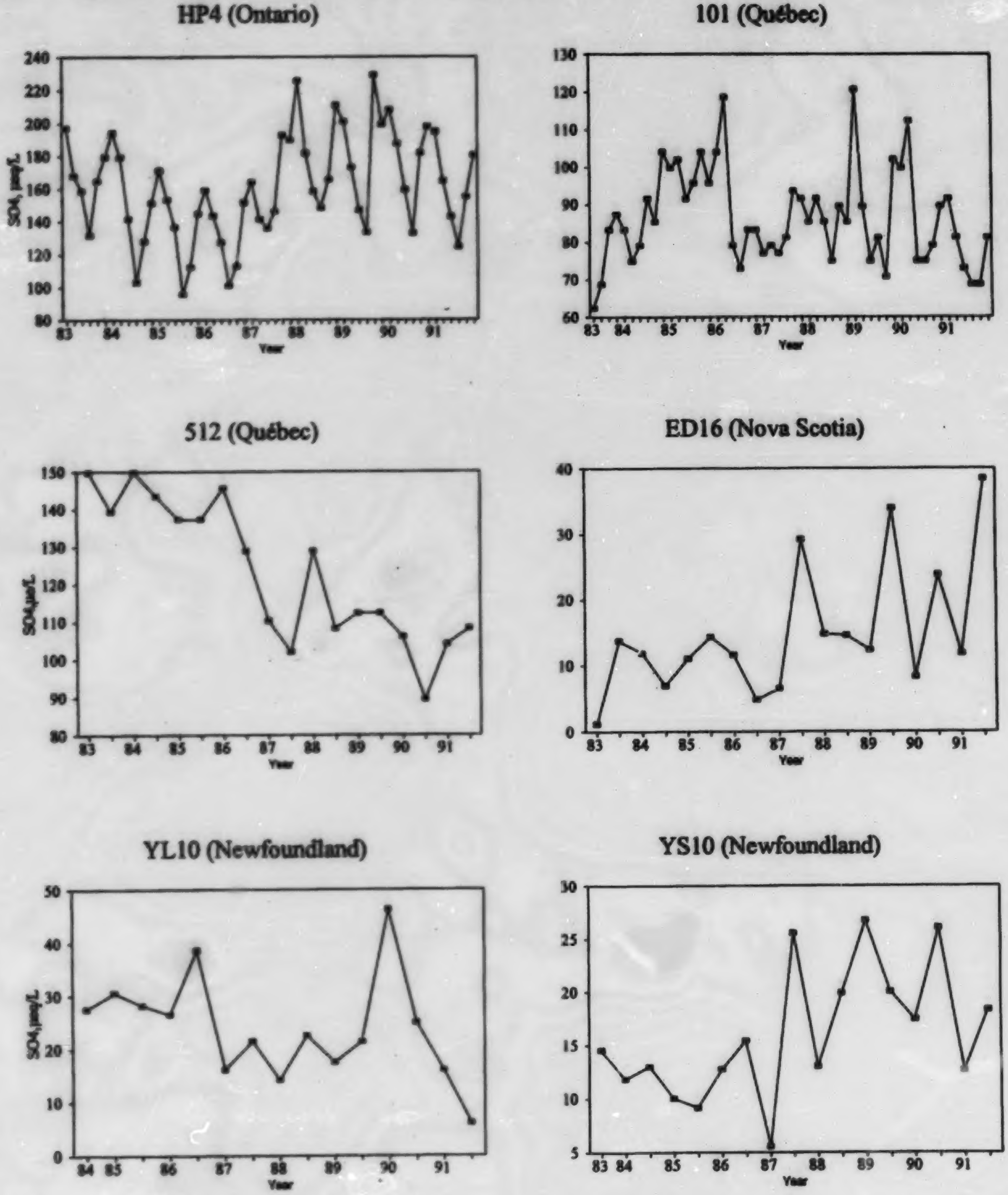
ED16 (Nova Scotia)

YL10 (Newfoundland)

Atlantic region lake chemistry trends

Over the 9-year period, there were three increasing pH trends (from 0.1 to 0.3 unit) and one small (<0.1 unit) decreasing trend in the 38 Nova Scotia lakes. They occurred in both the southwestern and south-central portions of the province. In Newfoundland, 4 of 33 lakes displayed small pH increases (all <0.1 unit), while one lake had a decreasing trend (0.2 unit with final pH = 5.5).

Fig. 7. SO_4^{2-} time series plots for selected sites. Note the differing vertical scales.



HP4 (Ontario)

101 (Québec)

512 (Québec)

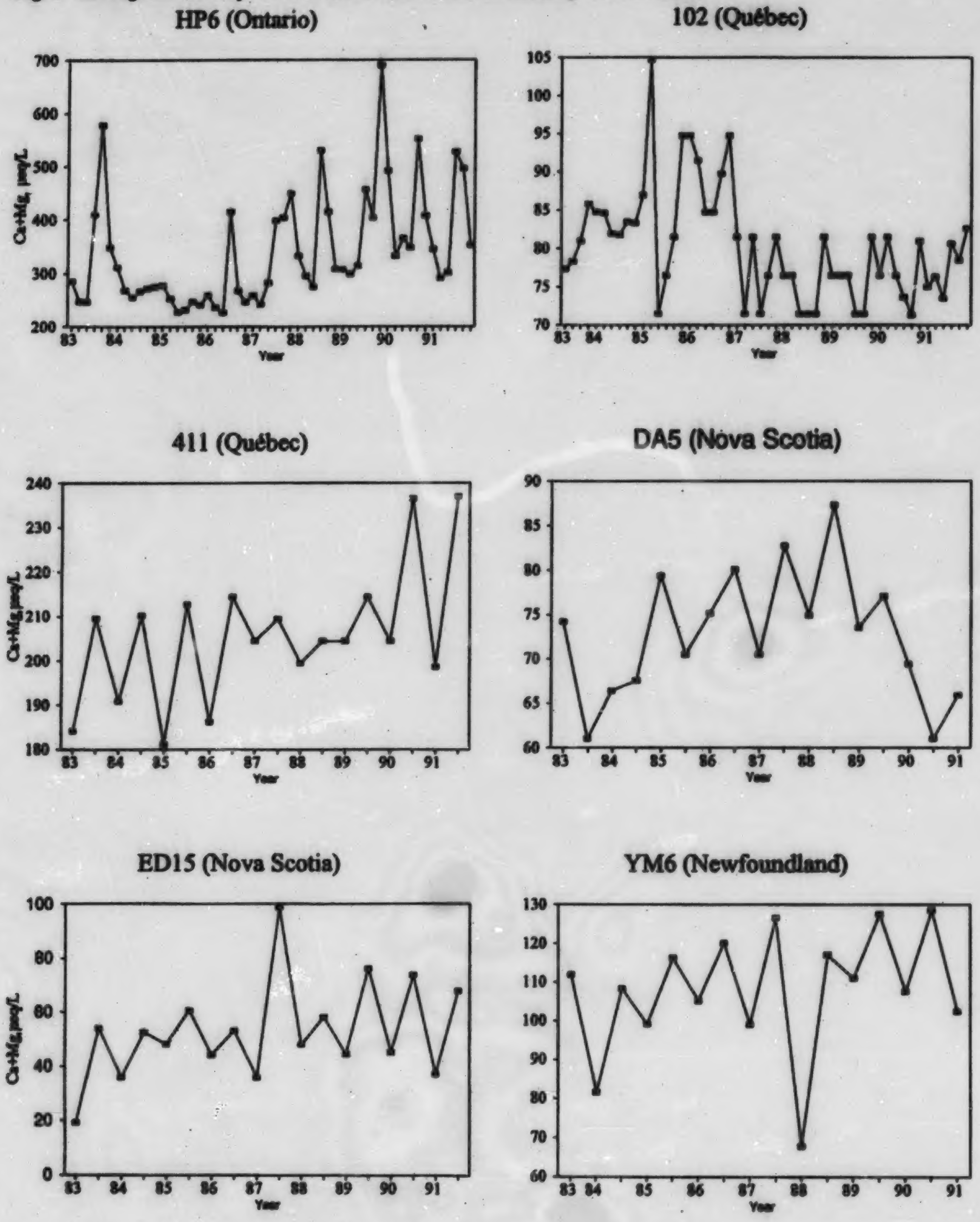
ED16 (Nova Scotia)

YL10 (Newfoundland)

YS10 (Newfoundland)

Lakes in the Atlantic region exhibited only positive or no trend for ANC. Fifteen of the 38 Nova Scotia lakes (located in both the Yarmouth and Kejimkujik areas) had upward trends, with the increases ranging from 4.3 to 18 µeq/L. The three lakes that exhibited increasing pH trends also had positive ANC trends, but so did the

Fig. 8. Ca+Mg time series plots for selected lakes. Note the differing vertical scales.


HP6 (Ontario)

102 (Québec)

411 (Québec)

DA5 (Nova Scotia)

ED15 (Nova Scotia)

YM6 (Newfoundland)

lake with decreasing pH. In Newfoundland, 16 of 33 sites showed positive ANC trends (increases from 3.8 to 22 µeq/L over the 9 years). Three of these lakes had corresponding pH increases.

There were 13 increasing SO_4^{2-} trends in Nova Scotia lakes, with magnitudes ranging from 5.8 to 18 µeq/L over the 9 years, and only one lake (EA2) showed a decreasing trend of 8.1 µeq/L. Of these 14 significant SO_4^{2-} trends, seven also had increasing ANC, including Lake EA2. The predominantly positive direction of SO_4^{2-} trends from Nova Scotia therefore resembled that from Ontario.

There were six increasing and five decreasing SO_4^{2-} trends in Newfoundland. The magnitude of the increases varied from 8.1 to 14 μeq/L for the study period, while the decreases occupied a narrow range from 9.2 to 12 μeq/L. Five of six Newfoundland lakes with increasing SO_4^{2-} showed no change in pH and ANC, and the remaining lake had increasing ANC. In fact, most of the ANC increases (13 of 16) were not associated with any significant trend in SO_4^{2-}.

With Ca+Mg decreasing at two lakes and increasing at three, there was no general Ca+Mg trend in Nova Scotia lakes. Base cations increased in three Kejimkujik lakes (increases ranging from 5.4 to 22 μeq/L for the study period) and decreased in two others (one each from the Kejimkujik and Yarmouth areas). Similarly, there were only five significant Ca+Mg trends in Newfoundland although all were increasing (increases ranging from 8.6 to 21.8 μeq/L over 9 years).

Since most NO_3^- levels were below the LOD in Atlantic region samples, only three records (one in Nova Scotia and two in Newfoundland) were tested for trends. One of the Newfoundland sites was significantly increasing.

Increasing colour trends were detected in five Nova Scotia lakes although the results should be interpreted cautiously, since one trend was influenced by extreme values and another had a large number of values below the LOD. Six Newfoundland sites showed significant colour increases. These results suggest that natural acidity increased at these sites during the study period; however, a corresponding significant pH decrease was only recorded in one Newfoundland lake. There were five occasions where increasing colour overlapped with significantly decreasing SO_4^{2-}.

Discussion

Many statistically significant trends in the six lakes chemistry variables were identified across the four regions of southeastern Canada (Table 4). Some of the results may seem contradictory at first glance, e.g., 15 of 38 Nova Scotia lakes had increasing ANC but only 3 of 38 had increasing pH, while 13 had increasing SO_4^{2-}. However, it must be remembered that each of the trends was identified independently (e.g., only 6 of 38 Nova Scotia lakes had simultaneously increasing ANC and SO_4^{2-}) and that water chemistry is influenced by many factors that may affect trend detection, e.g., spatial and temporal inconsistency in deposition, interannual climatic variability, within-basin interactions such as wetland storage of S, or soil processes that transform N species, etc.

Our trend results for SO_4^{2-} in precipitation differed somewhat from those of Sirois (1993) although the overall interpretation is consistent. Sirois analyzed a slightly different time period (1979–1990) and used a more sophisticated statistical method (i.e., model fitting using least-squares regression). He identified decreasing trends in SO_4^{2-} concentration, not only at Algoma and Chalk River as we did, but also at Montmorency and Kejimkujik. Our more statistically conservative approach did not detect the decreasing SO_4^{2-} in precipitation that Sirois reported for the Atlantic region, although we did find significantly decreasing SO_4^{2-} deposition at Montmorency. Sirois did not analyze data from Sutton and Baie d'Espoir. Significant decreases in SO_4^{2-} deposition have also been reported for a number of sites in the central and eastern United States (and Sutton as well) for the period 1983–1988 (Newell 1993).

In the late 1970s to mid-1980s, declining SO_2 emissions over eastern North America were cited to explain decreasing SO_4^{2-} deposition at a number of CAPMoN stations (Dillon et al. 1988; RMCC 1990). Our observation that only half of the precipitation stations exhibited a significant downward trend in SO_4^{2-} deposition may reflect the slower rate of SO_2 emission reduction that occurred during the mid-1980s and early 1990s. The 1970, 1980, and 1990 SO_2 emissions were 5.6, 3.8, and 2.7 million tonnes, respectively, in eastern Canada (3.0 in 1985) and 31.2, 25.7, and 23.3 million tonnes, respectively, in the United States (Canada–US 1992).

Sirois (1993) also evaluated trends in precipitation NO_3^- concentration. Similar to our results, he found no NO_3^- concentration trend for Algoma and Chalk River, but differed by finding a steady increase at Montmorency and an increasing–decreasing pattern at Kejimkujik that peaked in 1988. Our analysis found an increasing trend in NO_3^- concentration only at Baie d'Espoir, although an increasing deposition trend was detected at both this and the Kejimkujik station. We did not confirm Sirois' NO_3^- increase at Montmorency which may be due to differences in statistical methodology or the time period analyzed.

Only 19 of our 111 surface water sampling sites showed significant pH trends (nine increases and 10 decreases, Table 4), implying an overall stability in water pH across eastern Canada; however, some regional differences exist. Surface waters near Dorset in south-central Ontario clearly show strong seasonal patterns for pH (Fig. 5), with nearly equal numbers of increasing and decreasing trends. In contrast, all five Québec sites exhibiting a significant pH trend were decreasing, while increasing pH trends predominated (seven of nine) at Atlantic region sites.

Considering all regions together, there were 34 increasing ANC trends (almost all in Ontario, Nova Scotia, and Newfoundland) and 11 decreasing trends (almost all in Québec). In most cases, complimentary pH and ANC trends were not detected in the same waters. This result is most likely a statistical artifact caused by differing relative levels of variability in the pH and ANC data records. Data variability strongly influences the detection of monotonic trends as attempted here, and in general, only longer monitoring records will allow identification of trends in "noisy" data. A second possible but less likely explanation is that the chemical components comprising ANC have changed also, e.g., bicarbonate exchanged for aluminium or organic anions. This could allow ANC to change but not pH. We do not have aluminium data to evaluate this possibility, but our colour data for the Atlantic region are a gross indicator of the organic anion concentration. Of the 11 significant colour trends (all increases), only four had concomitant ANC increases.

The glaciated terrain of southeastern Canada exhibits little within-basin retention of SO_4^{2-} (Rochelle et al. 1987). Therefore, one might expect to be able to interpret the data in terms of a simple acid–base titration, i.e., increases or decreases in deposition lead to parallel changes in runoff SO_4^{2-} with appropriate compensatory changes in other ions. However, where we found trends for lake SO_4^{2-} (Table 4), they showed strong regional differences that were sometimes inconsistent with the trends in precipitation SO_4^{2-} (Table 2). Such trend inconsistencies probably arise because drainage basins are likely to need at least a few years to establish a new quasi-equilibrium with a changed SO_4^{2-} input. Lower precipitation quantities may lead to higher runoff SO_4^{2-} due to a concentration effect (Newell 1993), but our analyses found no trend in precipitation depth.

The situation in Québec seems to be the most straightforward example of a simple sulphuric acid titration, since the decline in deposition observed at Montmorency is concomitant with the predominantly negative trends (14 of 15) observed for lake SO_4^{2-}. Note, however, that there was no trend for precipitation SO_4^{2-} at Sutton, and ANC and pH trends in Québec lakes were generally unchanging or decreasing. An expectation underlying implementation of SO_2 emission control is that the decrease in runoff SO_4^{2-} will be chemically compensated by a reduction in acidity, i.e., an increase in pH and (or) ANC. At this time, such an effect is not widely manifest in Québec. Similar decreases in lake SO_4^{2-} were reported for the 1980s in the northeastern United States that were consistent with decreasing SO_4^{2-} deposition (Driscoll et al. 1991; Kahl et al. 1991, 1993), but like our Québec data, Driscoll et al. (1991) also reported decreasing ANC levels. Increases in NO_3^- may account for at least some of the lack of improvement of ANC and pH observed in both Québec and northeastern United States waters. This situation is similar to that found in southern Norway where the regional acidity status has remained relatively constant despite reductions in SO_4^{2-} deposition and runoff (Henriksen et al. 1988).

Increasing SO_4^{2-} trends in Ontario surface waters were not consistent with the decreasing trend identified in deposition (Table 2). This may be related to climatic factors. The discontinuity in the SO_4^{2-} records for Ontario waters (e.g., HP4, Fig. 7) that lead to application of the step trend procedure was contemporaneous with the driest year of the 9-year period (i.e., 1987, see Fig. 2). There have been similar observations in other parts of Ontario. For example, Keller et al. (1992) reported that SO_4^{2-} increased in Sudbury region lakes between 1987 and 1989 despite relatively stable local SO_2 emissions over the latter half of the 1980s. They attributed this observation to the leaching of stored SO_4^{2-} from watersheds and wetlands and to mobilization of S from littoral sediments in one particularly wet year (1988) following two consecutive dry years. Trends for other chemical variables in Ontario were not systematically related to the SO_4^{2-} trends. It is likely that some basins respond to reduced SO_4^{2-} inputs by decreasing cation export rather than increasing ANC, a response noted in Algoma area lakes by Kelso and Jeffries (1988).

Like Ontario, trend interrelationships were very irregular in the Atlantic region. In Newfoundland, for example, only one of the six increasing lake SO_4^{2-} trends was associated with a significant trend in ANC (also increasing), while three of the five cases of decreasing SO_4^{2-} corresponded with two increasing ANC trends and one decreasing pH trend. In Nova Scotia, about one half of the lakes with SO_4^{2-} increases also showed ANC increases. Although the SO_4^{2-} records for Atlantic region lakes do not show the pronounced concentration discontinuity observed in Ontario around 1987, they do suggest that for at least some stations (e.g., two of three lakes in Fig. 7), increased between-sample variability in SO_4^{2-} occurred after this date. Despite the increasing NO_3^- deposition found for both Atlantic region precipitation stations, extreme nutrient impoverishment in many lakes means that this input NO_3^- is acting more as a fertilizer than an acidifier.

Table 4. Summary of variable trends by region. Due to many NO_3^- values below the LOD, trend analysis for this variable was only possible for one Nova Scotia and two Newfoundland lakes.

pH	↑	↓	↔
Ontario	2	3	6
Québec	0	5	24
Nova Scotia	3	1	34
Newfoundland	4	1	28
ANC	↑	↓	↔
Ontario	3	1	7
Québec	0	10	19
Nova Scotia	15	0	23
Newfoundland	16	0	17
Sulfate	↑	↓	↔
Ontario	5	0	6
Québec	1	14	14
Nova Scotia	13	1	24
Newfoundland	6	5	22
Ca+Mg	↑	↓	↔
Ontario	4	0	7
Québec	6	7	16
Nova Scotia	3	2	33
Newfoundland	5	0	28
Nitrate	↑	↓	↔
Ontario	1	1	9
Québec	11	2	16
Nova Scotia	0	0	1
Newfoundland	1	0	1
Colour	↑	↓	↔
Nova Scotia	5	0	33
Newfoundland	6	0	26

It is evident that the trend in acidification status of lakes in southeastern Canada cannot be evaluated using the straightforward analogy of an equilibrium acid–base titration. Comparing temporal changes in the surface water chemistry of many of our monitoring basins with changes in deposition shows that there is not a consistent equilibrium relationship between the two, and in fact, geochemical equilibrium seems to be rare under present conditions. This may be due to the rather large changes in SO_4^{2-} deposition

Table 5. Classification of surface water acidification status by region. The classification is based on pH and/or ANC trends (see text).

Class	Status	Ontario	Québec	Atlantic	Total
1	Stable	5	16	39	60
2	Acidifying	3	13	1	17
3	Improving	3	0	31	34
	Total	11	29	71	111

that have occurred over the study period (i.e., the interannual variations, multiyear patterns, or consistent trends; Fig. 2). Undoubtedly, wetlands are playing an important role in SO_4^{2-} retention-export dynamics (Dillon and LaZerte 1992), especially for central Nova Scotia and Newfoundland lakes.

Our results are influenced by the time "window" used in the analysis. For example, Clair et al. (1992) used the same statistical approach and Nova Scotia lakes and found mostly significant decreases in SO_4^{2-} for the period 1983–1989. With the addition of two more years of data, we have found mostly significant SO_4^{2-} increases. In Newfoundland, Clair et al. (1992) found that SO_4^{2-} trends were similar to those in this study but they reported more increasing pH trends (15 vs. 4) and fewer ANC trends (6 vs. 16) than reported here. Even our 9-year data set has a limited ability to identify "real" as opposed to "statistical" long-term trends. Continuation of the monitoring program is essential.

Based on the pH and ANC trends detected in lakes between 1983 and 1991, we divided our monitoring stations lakes into three classes: Class 1, where pH and ANC showed no trends, Class 2, where pH and/or ANC were decreasing, and Class 3, where pH and/or ANC were increasing (Table 5). Class 1 stations were considered to have a stable acidification status. Class 2 waters are acidifying, while Class 3 implies recovering or improving situations. Our classification scheme is based on generous criteria, since many combinations of trends in acidity indicators (pH and ANC) with other chemical trends may still fall within a single class.

Interpreting acidification status based solely on ANC trends must be done with caution. Bricker and Rice (1989) and Kilham (1982) showed that increases in acidic deposition in basins containing carbonate geology can lead to increases in surface water pH, ANC, and base cations (Ca+Mg) by promoting $CaCO_3$ weathering and generating alkalinity. Most basins in our monitoring network have highly resistant silicate bedrock and surficial materials that do not act in themselves as a source of ANC during weathering. In these basins, ANC and pH are therefore expected to rise during deacidification, while base cations show little change because a decrease in aluminium will be the primary cation response (Schnoor and Stumm 1986). The most likely exceptions occur in central Ontario (as noted above), where small amounts of $CaCO_3$ in the glacial tills can influence surface water chemistry (Jeffries 1991).

Keeping these reservations in mind, our very simple classification scheme categorized 5 of 11 Ontario sites as stable (BO, PC1, PCO, and 2 Harp Lake inflows), three as acidifying (all Harp Lake inflows), and three as recovering (TO, HPO, and HP5). For the period 1979–1985, Dillon et al. (1987) reported stable conditions in Harp Lake (i.e., stable pH and ANC) and acidification in Plastic Lake (i.e., decreasing pH, ANC, and base cation trends; stable SO_4^{2-}). Thus, in contrast with the earlier period, a number of Harp Lake sites changed between 1983 and 1991, while Plastic Lake sites now seem to be stabilizing.

The restricted geographical coverage provided by our Ontario sites prevents spatial generalization of the trend results. However, a number of recent studies help to remedy this shortcoming. Kelso et al. (1992) reported the recovery of lakes from the Algoma area between 1979 and 1988 (i.e., increasing pH and decreasing SO_4^{2-} and Ca^{2+}). Keller et al. (1992) also reported improving lake chemistry in the Sudbury area during the late 1970s to the mid-1980s followed by a subsequent levelling off or even increasing acidity at some sites in the late 1980s. The available data suggest that local deposition patterns and regional acidification histories must be considered when attempting to explain the mixed results from Ontario.

Despite the fact that decreasing trends in water SO_4^{2-} predominated in Québec, all 29 lakes fell into Class 1 or 2, 16 were stable, and 13 were acidifying. However, three lakes in the acidifying class had median pH > 7.0 and median ANC > 200 μeq/L and thus are not considered sensitive to acidification.

The Atlantic region results contrast with those in Québec, since increasing SO_4^{2-} trends predominates in the surface waters, yet there is a greater tendency towards higher pH or ANC. Of the 71 Atlantic region lakes, 38 were stable, 31 improving, and only one lake was classified as acidifying. One lake did not fit into our classification scheme because it had both increasing ANC and decreasing pH.

The results of our trend analyses for eastern Canada illustrates the variable influence exerted by geography, geology, and deposition on water chemistry. Although SO_4^{2-} deposition seems to be decreasing over much of eastern Canada, landscape type, the nature of soils, their parent material, vegetation, and also climate combine to complicate the ecological response.

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SPATIAL CHARACTERIZATION OF ACIDIFICATION RELATED PARAMETERS IN SENSITIVE REGIONS OF ATLANTIC CANADA

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ABSTRACT. Many lakes in eastern Canada are sensitive to long range transport of atmospheric pollutants because of their low buffering capacity. Thus, it is important to assess long term changes in water quality. Due to the large number of lakes, a method was needed for choosing a subset of lakes to monitor regularly. Preliminary surveys were conducted in Nova Scotia and Newfoundland in which water quality parameters connected with acidification were measured in a set of lakes in each region. This paper describes the division of each set of lakes into several groups, with lakes in a group having similar water quality parameter values, by means of cluster analysis and principal component ordination. The characteristics of the groups are shown by graphical procedures and summary statistics, and this characterization is used to both determine the number of groups and describe the final choice. The membership of the groups was subsequently assessed in terms of the influences of terrestrial weathering, marine aerosols, anthropogenically derived mineral acids and natural organic acids.

1. INTRODUCTION

The Atlantic provinces of Canada are located downwind from major emission sources in the Eastern United States and Central Canada, and are receiving acid precipitation due to long range transport of atmospheric pollutants (LRTAP), principally oxides of S and N (Shaw, 1979; 1982). The water bodies of the region are sensitive to acidification because of low buffering capacity due to thin soils and siliceous or granitic bedrocks in much of the region. Low pH levels and alkalinity concentrations near zero in lakes and rivers are not uncommon (Howell and Brooksbank, 1987, and references therein). Thus, the monitoring of water quality to assess temporal responses to LRTAP is important in Atlantic Canada.

In order to design an economically feasible monitoring network, which would include lakes of different characteristics, preliminary surveys of the water quality characteristics of selected Nova Scotia and Newfoundland headwater lakes were conducted. The two study areas,

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southwestern Nova Scotia and Newfoundland, were chosen because they are geologically sensitive but have different positions on the LRTAP deposition gradient. Headwater lakes of small basin size, which respond quickly to changes, and of minimal human disturbance were used.

In this paper, the stratification which provided a basis for selecting the lakes to be monitored, is given. Multivariate statistical techniques (clustering and principal components) are used to describe the attributes of each set of lakes, and to define clusters of lakes of similar attributes. From each cluster a predetermined number of lakes were chosen at random for future monitoring.

2. METHODS AND MATERIALS

Late summer or fall surface grab samples were collected from each lake during independent surveys of southwestern Nova Scotia and insular Newfoundland by Environment Canada and the Department of Fisheries and Oceans. The Newfoundland samples were collected from 152 lakes in 1980, the Nova Scotian samples from 89 lakes in 1981. The water quality variables were measured using standard analytical methods (Environment Canada, 1979), and sulfate and Ca concentrations are sea-salt corrected values. Water color was not measured in the samples from lakes 63 to 89 in Nova Scotia, and these lakes will not be discussed further here (see Esterby _et al_., 1989). Newfoundland sulfate concentrations were determined using the methylthymol blue method (MTB), whereas Nova Scotia sulfate concentrations were determined by ion chromatography. The MTB sulfate method is subject to color interference, and has been shown by several authors (Kerekes _et al_., 1984; Howell and Pollock, 1986) to overestimate sulfate concentrations in organic waters. However, these authors have also suggested that the technique may give an estimate of the sum of the sulfate and organic anion concentrations and, because of the importance of sulfate measurements, the MTB results have been included in the analysis.

The Nova Scotia lakes are concentrated in southwestern Nova Scotia, with a large number of sites situated in Kejimkujik National Park and in the vicinity of Yarmouth (Figure 1). The Newfoundland lakes are widely dispersed, and, with the exception of the Avalon Peninsula, cover the entire island (Figure 2). The identification numbers used for the lakes have been plotted treating longitude and latitude as rectilinear coordinates, as have the cluster memberships later. To relate this to map locations, undistorted plots, without lake numbers, have been inset in Figures 1 and 2.

3. STATISTICAL METHODS

The product-moment correlation coefficients were calculated for all pairs of variables and this correlation matrix was used in the principal component analysis. The number of variables was reduced by using only those eigenvectors corresponding to large eigenvalues (Morrison, 1967). To obtain groupings of the lakes graphically, the component scores of the lakes for the first three principal components were plotted and groups were formed by inspection.

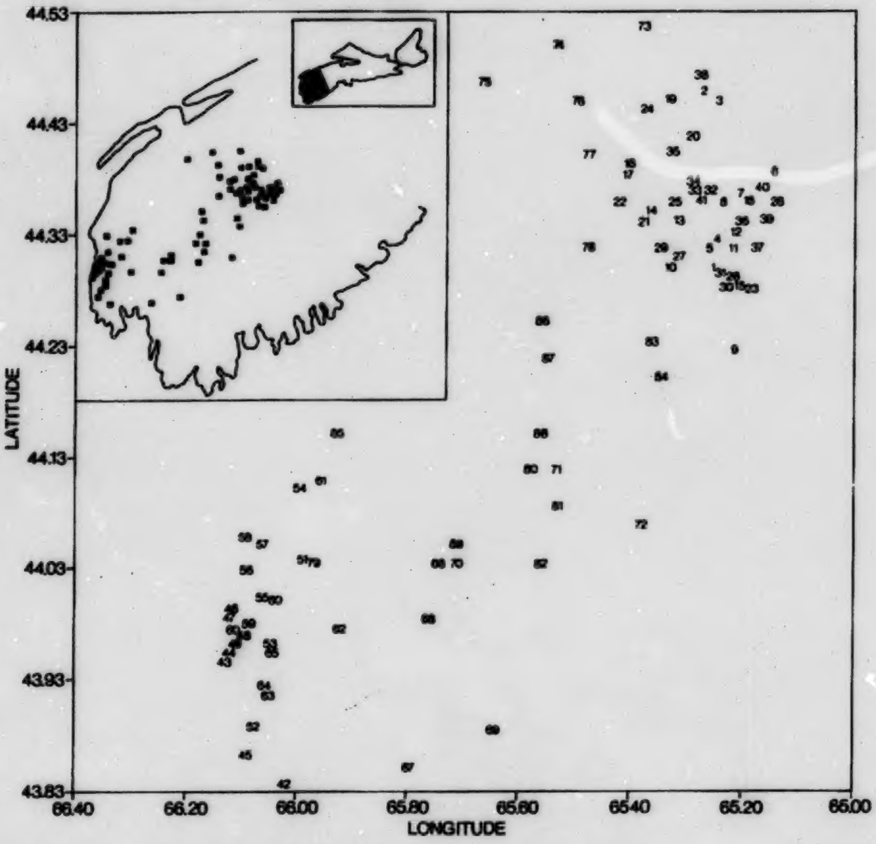
44.53
44.43
44.33
44.23
44.13
44.03
43.93
43.83
LATITUDE
66.40
66.20
66.00
65.80
65.60
65.40
65.20
65.00
LONGITUDE

Figure 1. Locations of lakes sampled in Nova Scotia.

Grouping of the lakes by a numerical procedure using standardized variables was done by means of a non-hierarchical nearest-centroid clustering procedure (Anderberg, 1973). The clustering was performed for the number of clusters equal to 2 to 7 or 8. For each number of clusters, the proportion of the total variation for all variables accounted for by the clusters was calculated (Hartigan, 1975) as a ratio of sums of squares.

The geographic distribution of the clusters and the characteristics of the clusters in terms of the variables were examined. The number of the cluster to which a lake was assigned was plotted at the position of the lake on a plot with longitude and latitude treated as rectilinear coordinates. The mean for each variable in each cluster was plotted against cluster number for the varying numbers of clusters. Frequency distributions of the variables were also obtained and given as histograms for larger clusters and as a simple plot showing the number of lakes in an interval of variable values for small clusters. These three forms of characterization, plus the percentage of explained variation were used to determine the nature of the groups obtained for different numbers of clusters.

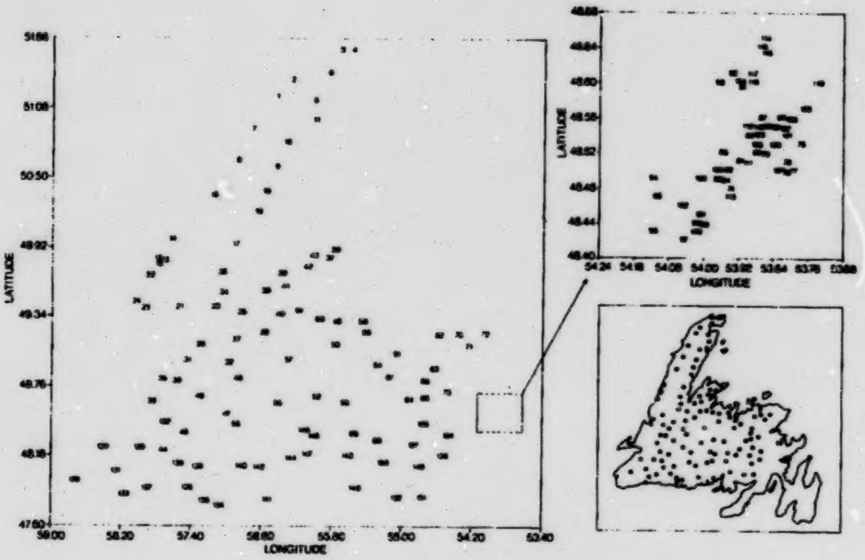
LATITUDE
51.66
51.08
50.50
49.92
49.34
48.76
48.18
47.60
59.00
58.20
57.40
56.60
55.80
55.00
54.20
53.40
LONGITUDE
LATITUDE
48.68
48.64
48.60
48.56
48.52
48.48
48.44
48.40
54.24
54.16
54.08
54.00
53.92
53.84
53.76
53.68
LONGITUDE

Figure 2. Locations of lakes sampled in Newfoundland.

4. RESULTS AND DISCUSSION

4.1. Nova Scotia

The product-moment correlation coefficients between the 7 variables which were measured in the 62 Nova Scotia lakes (Table I) show that alkalinity, Ca, chloride, and conductivity are highly correlated ($r \geq 0.91$), and color negatively or not correlated with all the other variables. The product-moment correlation coefficients between the logarithm of the concentrations plus a small constant, added due to the presence of zeros, and Spearman's rank correlation coefficients were also calculated and all three methods produced large coefficients for the same pairs of variables. An explanation for the high correlation of the first 4 variables is increased terrestrial weathering in the coastal lakes, which have thicker soil overburdens than inland lakes, together with increased salts from marine aerosols. Water color is a consequence of the processes controlling the production and delivery of organic matter from the bogs to the surface waters, which are different from chemical weathering and marine aerosol transport.

TABLE I. Correlation coefficients for the 62 Nova Scotia lakes for which seven variables were measured.

	Alk.	Cond.	Color	SO_4	Ca	Cl
pH	0.43	0.36	-0.58	0.17	0.49	0.37
Alkalinity		0.91	-0.36	0.29	0.95	0.92
Conductivity			-0.28	0.54	0.92	0.98
Color				0.05	-0.33	-0.33
Sulfate					0.40	0.51
Ca						0.94
Chloride						

The results of the principal components analysis further reflect this situation. The first three principal components account for over 90% of the variance and the first principal component is dominated by the weathering and marine aerosol variables (Table II). The most important variables for the second principal component are water color, pH and sulfate. The difference in signs observed for pH and sulfate is consistent with mineral acidification. Similarly, the same sign for sulfate and color suggests that natural organic acids are also involved in the acidification of these lakes. Thus, component two could be thought of as the acidification component with both natural organic acids and anthropogenically derived mineral acids (LRTAP) contributing to the overall acidification. The third component, dominated by pH and sulfate, with eigenvectors of the same sign, probably reflect non-acid sulfate loading from salts such as gypsum.

The most noticeable feature of the groups obtained by inspection of the plots of the scores for the lakes on the principal components (Figure 3), is the large group which corresponds to high scores on the first principal component and thus low concentrations of the highly correlated variables alkalinity, Ca, chloride and conductivity. This grouping of lakes represents those sites which are furthest from the coast and thus are only marginally influenced by marine aerosols. This group is relatively compact when the first and third principal components are plotted (Figure 3b), but elongated for the first and second components (Figure 3a), showing that there is more variability associated with the mineral and organic acidification variables than the non-acid sulfate.

TABLE II. Principal components for the 62 Nova Scotia lakes obtained from the correlation matrices.

	Standardized eigenvectors		
	1	2	3
pH	-0.58	0.79	-0.56
Alkalinity	-0.97	-0.02	0.42
Conductivity	-0.99	-0.27	0.12
Color	0.46	-1.00	0.12
Sulfate	-0.53	-0.65	-1.00
Ca	-1.00	-0.07	0.23
Chloride	-1.00	-0.22	0.15
Percent of total variance	63.3	18.7	10.5
Cumulative percent of total variance	63.3	82.0	92.5

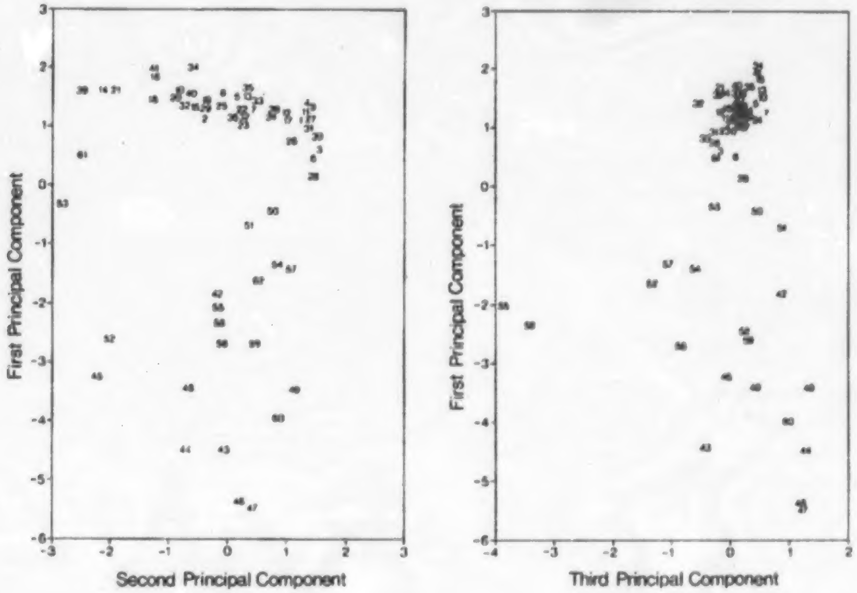

Figure 3. Scores of the Nova Scotia lakes on the first and second and first and third principal components for the 62 lakes and 7 variables.

In the cluster analysis, the percentage of variation explained for the number of clusters equal to 2 to 8 was 54, 63, 68, 76, 80, 82, and 83, respectively. The first cluster was large and was not subdivided until 5 clusters were used. For 4 or fewer clusters, this first cluster (Figure 4a) corresponds to the group of inland sites identified from the principal component plots. For small numbers of clusters, the variables which are highly positively correlated (Table I) tend to increase in concentration with cluster number. As the number of clusters is increased, the other variables show larger differences in their cluster means. When seven clusters are formed, clusters 1 and 2 contain the lakes which comprised cluster 1 when only 4 clusters were formed (Figure 4b), and now clusters 1 and 2 have different distributions for water color, pH and sulfate concentrations while those for alkalinity, Ca, chloride and conductivity are quite similar (Figure 5). Thus the division of cluster 1 accounts for differences in pH, water color and sulfate. The frequency functions provide detailed information about the variable values in each cluster, but plots of cluster means in original or standardized units (Esterby et al., 1989) also make the point clear. Box plots are an alternative to the histograms.

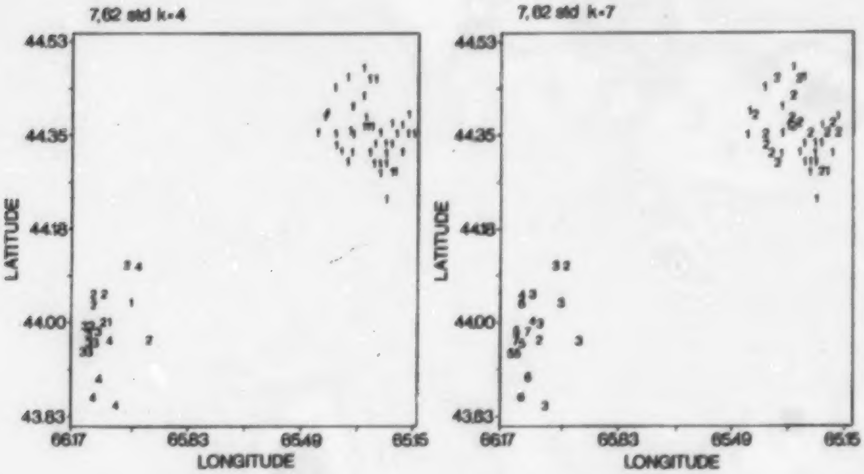

Figure 4. Cluster membership plotted at the lake location for the 4 and 7 clusters obtained for the 62 Nova Scotia lakes.

The sites in clusters 1 and 2, when 7 clusters were formed, are all situated inland on granite or slate bedrocks, with only minor variability in the marine aerosol and terrestrially weathered variables expected. However, as production of organic matter and the biological cycling of sulfate are basin specific processes, these parameters and their concomitant effect on pH are expected to show the most variability.

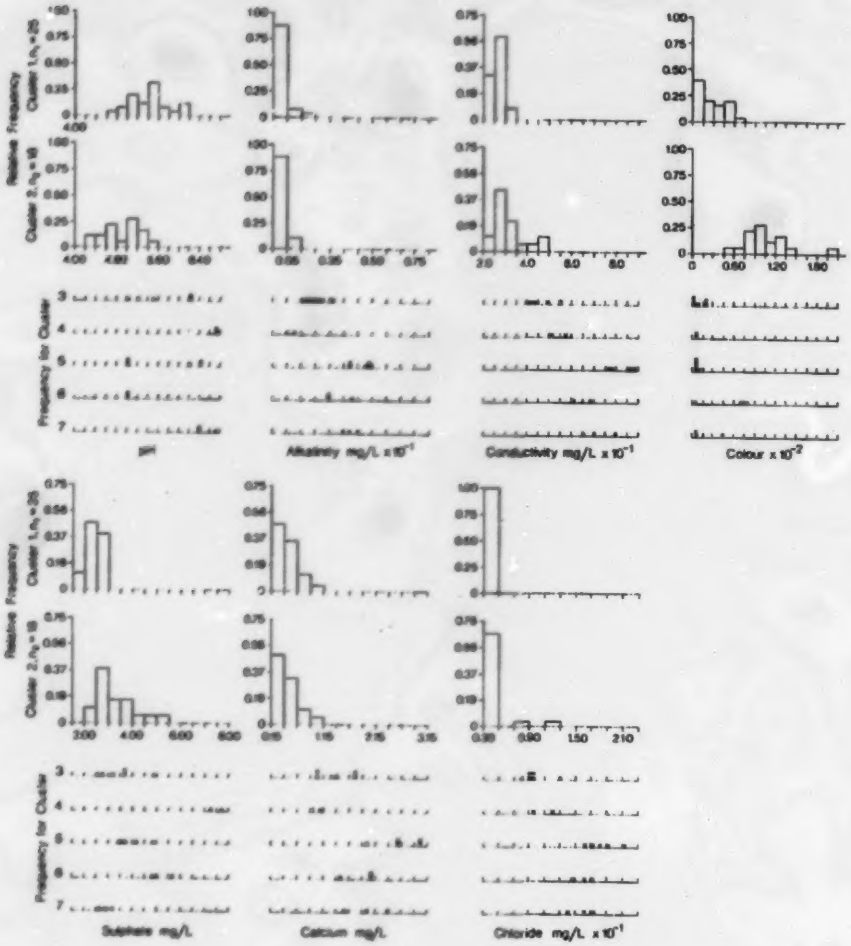

Figure 5. Frequency functions of the water quality parameters shown separately for each of the clusters when 7 clusters were determined from the 62 Nova Scotia lakes using the 7 variables.

Clusters 3 to 7 generally have small memberships and account for differences in most of the parameters considered. The lakes in these clusters are situated in an area of diverse geology (Howell, 1986; Howell and Brooksbank, 1987), which in addition to Devonian granite and Meguma series slates, also has deposits of an Upper Silurian white rock formation, comprised of quartzite, slate, shale, siltstone and volcanic rocks. Thus differences in geology can account for much of the chemical variability observed for these coastal lakes. In addition, marine aerosol influence decays rapidly as one moves inland and thus considerable variability of marine derived ions can be expected for the coastal lakes.

4.2. Newfoundland

The eight variables separate into two groups on the basis of their correlation coefficients (Table III). Alkalinity, conductivity and Ca are highly positively correlated ($r \geq 0.83$) and to a lesser extent these variables are positively correlated with pH ($r \geq 0.56$) and conductivity with chloride ($r = 0.69$). This grouping is similar to that observed for Nova Scotia, with the exception that chloride is not highly correlated with the first three variables, and it suggests that the observed relationships are due predominately to terrestrial weathering processes rather than marine aerosol influence. Logarithmic decay of chloride (Ogden, 1982) and conductivity (Howell, 1986) with distance from the coast has been documented for Nova Scotian lakes. Howell (1986) did not observe this relationship for Newfoundland lakes and suggested that strong orographic effects remove the marine influence very near to the coast. This may explain why chloride is not highly correlated with the other major ions. Water color is positively related to sulfate and total organic carbon (TOC) and negatively related to the other variables. This good relationship between color and TOC is to be expected as water color is a commonly used indicator of organic C concentration. The relationship between sulfate and TOC or color is merely an artifact of the analytical technique used to measure sulfate.

TABLE III. Correlation coefficients between the eight variables measured for 152 Newfoundland lakes.

	Alk.	Cond.	Color	SO_4	Ca	TOC	Cl
pH	0.68	0.56	-0.39	-0.34	0.59	-0.27	0.35
Alkalinity		0.83	-0.26	-0.11	0.94	-0.12	0.31
Conductivity			-0.19	0.12	0.88	-0.01	0.69
Color				0.61	-0.20	0.77	-0.07
Sulfate					0.04	0.71	0.09
Ca						-0.07	0.38
TOC							0.10
Chloride							

The first principal component is dominated by the three most highly correlated variables, alkalinity, conductivity and Ca, and to a lesser extent, pH (Table IV). This is similar to the first component for the Nova Scotia lakes (Table II), with the exception that it appears to emphasize terrestrial weathering processes over the marine aerosol involvement. The second component represents water color, sulfate and TOC, and, because the coefficients for pH and alkalinity are small, does not appear to represent the processes of natural and anthropogenic acidification. Together, these two components suggest that the main effect on pH of lakes in Newfoundland is the base cation supply weathered from the soil.

TABLE IV. Principal components for the Newfoundland lakes obtained from the correlation matrix.

Variable	Standardized eigenvector			
	1	2	3	4
pH	0.88	-0.14	-0.08	-1.00
Alkalinity	1.00	0.20	-0.45	0.02
Conductivity	0.98	0.46	0.15	0.34
Color	-0.55	0.86	-0.19	-0.55
Sulfate	-0.29	0.98	-0.06	0.60
Ca	0.98	0.34	-0.37	0.30
TOC	-0.37	1.00	-0.07	-0.47
Chloride	0.60	0.43	1.00	-0.11
Percent of total variance	46.7	29.8	10.0	6.4
Cumulative percent of total variance	46.7	76.5	86.5	92.9

Although portions of Newfoundland are geologically sensitive to LRTAP, the geographic location of the island results in low atmospheric deposition of acidic compounds which may explain why the first two components do not clearly indicate the acidification process. In addition, the use of MTB sulfate, which gives a measure of a combination of mineral and organic acids, may be masking the mineral or organic acidification effects.

The plots of the first three principal components are not useful in separating the lakes into groups since most of the lakes form one large group. The group extends from low values on the first and second principal components to high values on both. When represented on the first and third principal axes, the variation in this large group is mostly along the first principal component. Unlike Nova Scotia, there is no obvious separation of the coastal and inland sites. The third component is dominated by chloride which would suggest marine influence except for the failure to separate coastal and inland sites, and thus interpretation of this component is unclear.

From the cluster analysis with five or fewer clusters, between 106 and 146 of the 152 lakes were located in the first cluster. To obtain a separation of lakes with high TOC and color from this large cluster, and to remove atypical lakes from the larger clusters, a total of seven clusters was chosen (Figure 6). The small clusters consist of lakes which have higher or lower values for one or more of the variables than do the lakes in the large clusters.

The plots of the location of the clusters for 5 and 7 clusters (Figure 7) indicate that the large clusters do not form separate geographic regions. For 7 clusters (Figure 7b), clusters 4 and 6 are restricted to portions of the Great Northern Peninsula which are underlain by the geological formations of limestone and dolomite. Cluster 2 does not occur in the north-western part of the province while none of the small clusters are observed in the southwest.

Clusters 1, 2 and 7 contain 133 of the 152 lakes with the major difference among these three being higher water color readings in the lakes in cluster 2 than those in clusters 1 and 7, as shown by the small overlap of ranges (Figure 6). There is a shift in the frequency distribution of TOC and, to a lesser extent, of sulfate to higher values for cluster 2 lakes. The frequency distributions also show that cluster 7 differs from clusters 1 and 2 with higher values and skewness to the right for alkalinity, conductivity and Ca, and with slightly higher pH.

Although the cluster 2 sites have higher water colors and therefore higher potential for natural organic acidification, the underlying geology is less sensitive than for the cluster 1 sites and this may explain why the pH values of the two clusters do not differ appreciably. The separation of cluster 1 and 7 agrees well with the geological structure of insular Newfoundland. The cluster 7 lakes are situated in areas underlain by sandstone, siltstone, shale, limestones and dolomite, while the cluster 1 sites are situated in areas underlain by granite. These cluster 1 sites are concentrated along the south coast and on the western side of the Great Northern Peninsula and represent the most sensitive LRTAP receptor lakes on insular Newfoundland.

5. SUMMARY

The applicability of cluster analysis and principal components ordination to divide these sets of lakes into subsets has been demonstrated. In the choice of the groups, the cluster analysis was more useful since it removed lakes, with different characteristics in only one or a few parameters, from the large clusters. The principal components analysis helped in the understanding of the nature of the larger groups through the relationships between variables. The importance of characterizing the variable values within clusters, both during the choice of the number of clusters and for the final set of clusters, was illustrated.

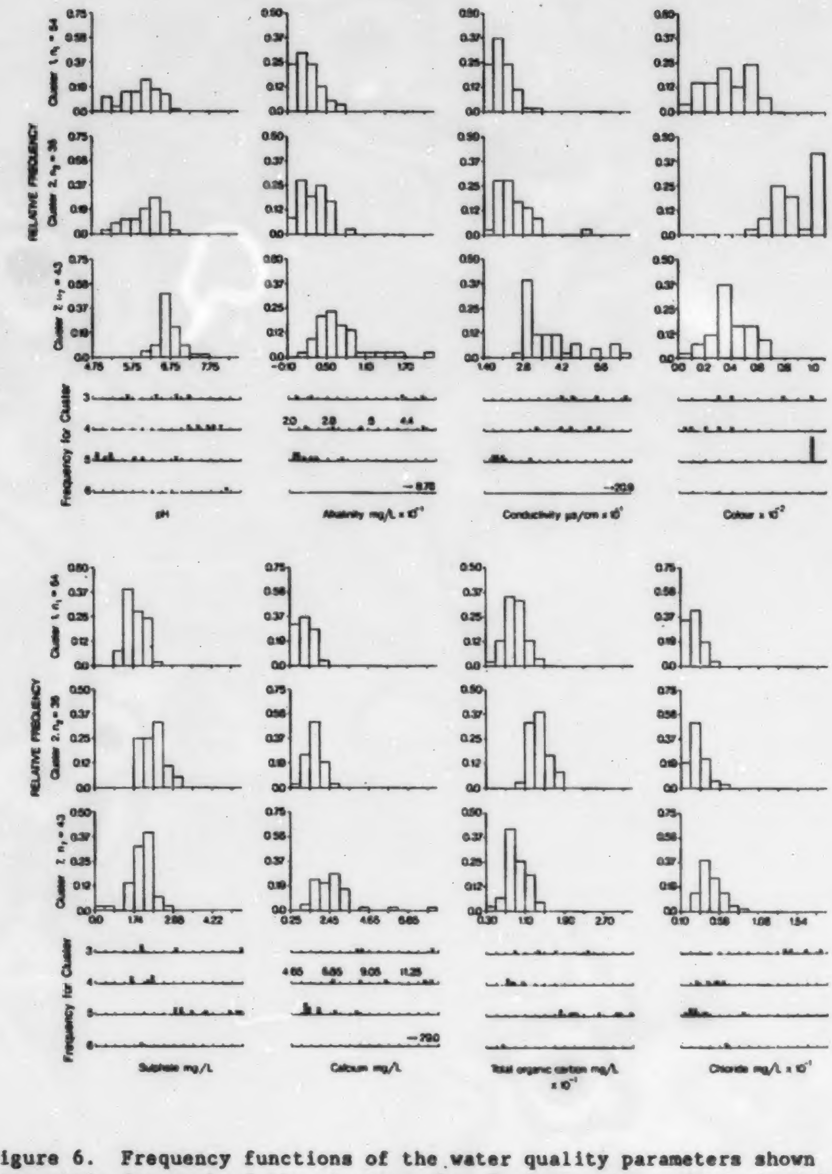

Figure 6. Frequency functions of the water quality parameters shown separately for each of the clusters when 7 clusters were determined from the Newfoundland lakes.

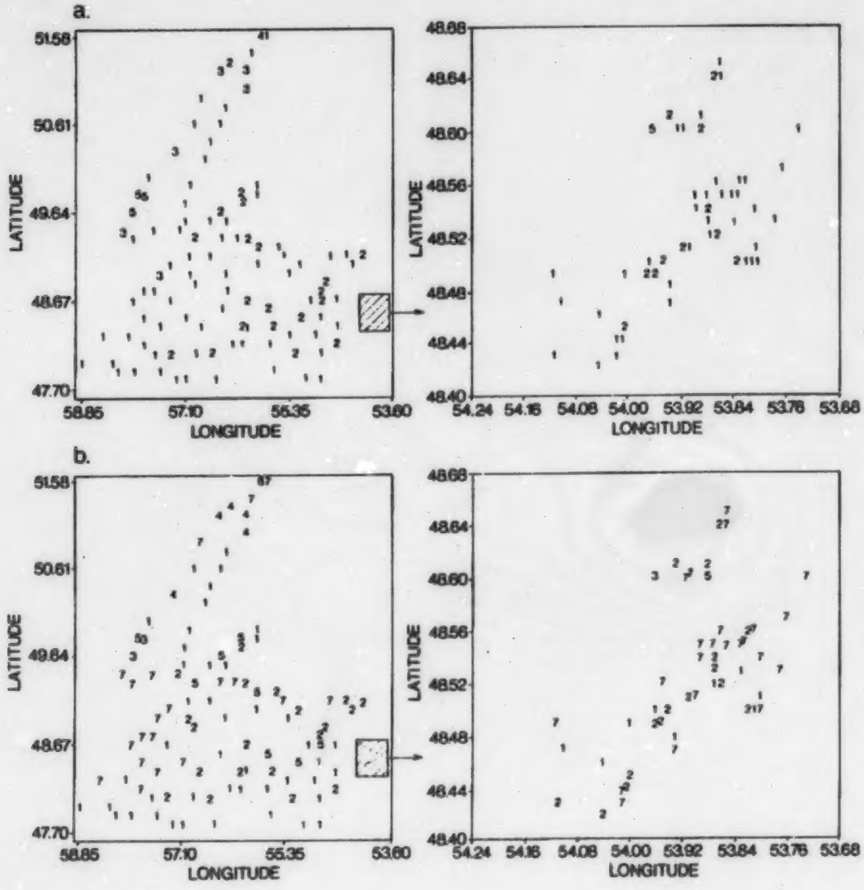
a.
b.
LATITUDE
LONGITUDE
51.58
50.61
49.64
48.67
47.70
58.85
57.10
55.35
53.60
48.68
48.64
48.60
48.56
48.52
48.48
48.44
48.40
54.24
54.16
54.08
54.00
53.92
53.84
53.76
53.68

Figure 7. Cluster membership plotted at lake location for the 5 and 7 clusters obtained from the Newfoundland lakes.

The lakes from both provinces were divided into 2 (Nova Scotia) or 3 (Newfoundland) large clusters with important differences between the parameters of the groups. A number of small clusters accounted for less common lake types. For both provinces, water color was an important variable in the determination of the membership of the large clusters. In Nova Scotia both large clusters had similar characteristics for alkalinity, Ca, chloride, and, to a lesser extent, conductivity, the parameters related to terrestrial weathering and marine aerosol. They, however, showed little overlap in the range of values for water color, and also differed in pH and sulfate. For the Newfoundland lakes, two large clusters displayed the difference in acidity related parameters together with similarity in weathering and marine related parameters, as found for Nova Scotia, and a third large cluster, characteristic of less susceptible lakes, had higher pH values and low color.

The rationale behind dividing the sets of lakes into subsets with different characteristics and sampling over time from each subset, is to permit separation of effects due to natural processes from those due to atmospheric deposition. The identification of sets of lakes with similar sensitivity but different levels of acidification due to natural organic acids should help in the separation of changes due to atmospheric deposition from those due to natural acidification when these sets are followed over time.

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STEP-WISE ANALYSIS OF PRECIPITATION AND RIVER CHEMISTRY TRENDS IN ATLANTIC CANADA

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Abstract. Monotonic trends in hydrogen (H^+), sulfate (SO_4^{-2})and nitrate (NO_3^-) were calculated using non-parametric techniques at four Canadian Air and Precipitation Monitoring Network (CAPMoN) sites and six nearby river systems in Atlantic Canada for the period 1983-1991. Over the whole interval, there were increasing nitrate concentrations and deposition trends at three of the four monitoring sites and no trends in SO_4^{-2} or H^+ concentrations and deposition. We found that SO_4^{-2} concentrations increased at three of our six river sites, NO_3^- increased at one site and H^+ decreased at one site. River exports showed no trends in the entire study interval. The series were also analyzed in five year time windows, incremented by six months, to see if changes in trend presence or direction would occur, compared to trend analysis over the entire interval. We show that while trends in river chemistry do not contradict deposition patterns, the changes that occurred were not necessarily in step. We also found that the trends which we measured were the result of short-term changes as opposed to long-term continuous monotonic trends. The time lag between precipitation and chemistry trend changes seemed longer in basins dominated by softwoods than by hardwoods.

Key Words: rivers, precipitation, trends

1. Introduction

As more monitoring data from acidification networks becomes available for interpretation, it has become important to understand how to properly treat and interpret it. This is necessary in order to ensure all possible information is extracted and that faulty interpretations caused by an inadequate understanding of local conditions and geochemistry not occur. In particular, we were interested in knowing whether short-term trends in acidification-related chemistry occurred within long data sets, and if they did, whether or not they were masked or modified by the longer trend picture. We were also interested in knowing whether or not trends in atmospheric deposition chemistry and amounts were reflected by changes in the water chemistry of basin runoff.

The goal of this study is to determine the long and short term trends present in deposition and river chemistry at six sites located on the extreme northeastern margin of North America by using different sub-intervals of the overall time series. We also examine the geographical characteristics of the trends present to see if basin characteristics can account for some of the results measured.

2. Study area and methods

Six rivers from Environment Canada's Atlantic Provinces surface water monitoring network which were in close proximity to four atmospheric CAPMoN sites in Atlantic Canada were chosen for this study (Figure 1 and Table I). The study area encompasses basins in the provinces of New Brunswick, Nova Scotia, and Newfoundland. The sites chosen were largely unaffected by industry, agriculture, or urbanization. The river basins cover some of the major land types in Atlantic Canada, and cross several types of bedrock with widely varying acid

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Table I

Area, runoff and average slope of river basins and corresponding CAPMoN sites

River	CAPMoN site	Basin area (km^2)	runoff ($m\ yr^{-1}$)	av. slope ($m\ km^{-1}$)
Piper's Hole	Bay D'Espoir	764	1.01	6.1
Salmon	Harcourt	1050	0.59	2.2
Kelly	Jackson	63	0.79	4.8
Wallace	Jackson	298	0.88	14.9
Mersey	Kejimkujik	270	0.89	2.2
Medway	Kejimkujik	1390	0.88	2.6

neutralization capacities. On average, the region receives from 16 to 10 kg ha^{-1} $an.^{-1}$ SO_4^{-2} and between 8 and 10 kg ha^{-1} an^{-1} NO_3^-, values reducing from west to east.

Monthly concentration and deposition values were extracted from the CAPMoN database for H^+, seasalt corrected SO_4^{-2}, and NO_3^-. For the study interval of January 1983 to December 1991 less than 1% of the data was missing, although data for the Harcourt and Jackson precipitation sites began in August 1983. River water samples were collected at least monthly at stream gauging stations. Concentration values for H^+, seasalt corrected SO_4^{-2}, and NO_3^- from the freshwater acidification database were used to calculate daily export values using the measured discharge on the sampling date. Daily surface water discharge values were extracted from Environment Canada, Discharge Data summaries. Less than 5% of the river water chemistry data was missing over the study interval.

Water pH was measured in the laboratory potentiometrically and used to calculate H^+ concentration. SO_4^{-2} and NO_3^- were analyzed by ion chromatography. Seasalt correction for SO_4^{-2} was performed using the method described by Clair and Whitfield (1983) with Cl^- used as the marine tracer.

Non-parametric detection and estimation of trends was performed on precipitation concentration and deposition data, as well as river concentration and exports using the statistical software 'DETECT' developed and described by Cluis *et al.* (1989). Test selection was based on the presence or absence of seasonality (by comparison on monthly means) and serial autocorrelation (Markovian and non-Markovian persistence). No persistence and no seasonality in the series caused the Kendall test (Hirsch *et al.*, 1982) to be selected. If there was no persistence, but seasonality was present, the test used was the Kendall Seasonal test (Hirsch *et al.*, 1982). In instances where both seasonality and persistence were present, the Hirsch and Slack test (1984) was used, and when seasonality was absent but persistence was present, the Lettenmaier/Spearman test (Lettenmaier, 1976) was selected. Most of the data was found to vary seasonally, so that for the majority of cases the Kendall Seasonal or the Lettenmaier/Spearman test was used. Missing values in the series were generated taking the mean value for the same month in other years when seasonality was present, and by temporal interpolation when seasonality was absent.

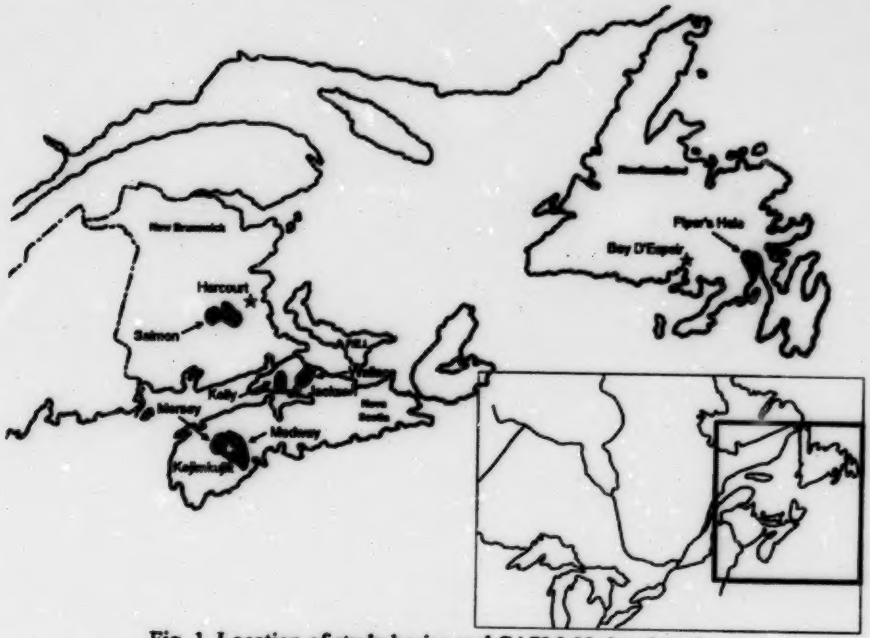

Fig. 1. Location of study basins and CAPMoN sites (stars)

Each data series was tested for monotonic trends in two ways. First, the entire nine year span of data was tested using the monthly data, and then the series was divided into nine five-year subintervals, with each subinterval incremented by six months from the previous interval. The first method provided the normal test for monotonic trend over the available interval, while the second method provided insight as to the evolution of a trend through time. The five-year subinterval for trend evolution was chosen as a compromise between statistical validity for each test (number of data points), and the resolution of the results (number of subintervals).

3. Results and Discussion

3.1. TRENDS OVER THE ENTIRE INTERVAL

For the period 1983-1991 H^+ concentrations in both precipitation and river chemistry at all sites remained largely unchanged with the exception of a slight decrease at Piper's Hole (-0.03 μeq L^{-1}). SO_4^{-2} concentration remained steady at all precipitation sites, while increasing at three river sites (Piper's Hole 0.03 , Kelly 0.04, Medway 0.03 mg L^{-1} yr^{-1}). Increases at Kelly and Medway were not accompanied by increases in two adjacent rivers (Wallace and Mersey, respectively). NO_3^- increased at two precipitation sites (Bay D'Espoir 0.03,

TABLE II

Measured deposition, and export trends for sites. Results for river sites are placed immediately below the corresponding precipitation monitoring site. When trends were detected for the entire study interval, the slope of the trend and standard deviation (in parentheses) are shown in the adjacent column. Trends for the nine five-year subintervals are shown in the rightmost columns. Precipitation station is in bold type.

		Monthly Monotonic Trend	Slope (kg/ha/yr & kg/d/yr)	01/83 - 12/87	07/83 - 06/88	01/84 - 12/88	07/84 - 06/89	01/85 - 12/89	07/85 - 06/90	01/86 - 12/90	07/86 - 06/91	01/87 - 12/91
H+ Dep. / Export	**Bay D'Espoir**	↔		↔	↔	↔	↔	↔	↔	↔	↑	↑
	Piper's Hole	↔		↓	↔	↔	↔	↔	↔	↔	↔	↔
	Harcourt	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Salmon	↔		↓	↓	↔	↔	↔	↔	↔	↑	↔
	Jackson	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Kelly	↔		↔	↔	↔	↔	↔	↔	↔	↑	↑
	Wallace	↔		↓	↔	↔	↔	↔	↔	↔	↔	↔
	Kejimkujik	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Mersey	↔		↔	↔	↔	↔	↔	↔	↔	↔	↑
	Medway	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Sulfate Dep. / Export	**Bay D'Espoir**	↔		↓	↔	↔	↔	↔	↔	↔	↑	↔
	Piper's Hole	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Harcourt	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Salmon	↔		↔	↓	↔	↔	↔	↔	↔	↑	↔
	Jackson	↔		↓	↓	↔	↔	↔	↔	↔	↔	↔
	Kelly	↔		↓	↓	↔	↓	↓	↔	↔	↑	↑
	Wallace	↔		↑	↔	↔	↔	↔	↔	↔	↔	↔
	Kejimkujik	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Mersey	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Medway	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Nitrate Dep. / Export	**Bay D'Espoir**	↑	0.03 (0.01)	↔	↔	↔	↔	↔	↑	↑	↑	↑
	Piper's Hole	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Harcourt	↑	0.01 (0.02)	↔	↔	↔	↑	↑	↑	↑	↔	↔
	Salmon	↔		↓	↓	↔	↔	↑	↑	↑	↑	↔
	Jackson	↔		→	↔	↔	↔	↔	↔	↔	↔	↔
	Kelly	↔		↔	↔	↔	↔	↔	↔	↔	↑	↑
	Wallace	↔		↔	↔	↔	↔	↔	↑	↔	↔	↔
	Kejimkujik	↑	0.05 (0.02)	↑	↔	↔	↔	↔	↔	↔	↔	↔
	Mersey	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
	Medway	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔

Kejimkujik 0.04 mg L^{-1} yr^{-1}). The increase at Bay D'Espoir was not reflected at Piper's Hole River, and only a very slight increase in NO_3^- concentration was measured for one of the rivers associated with Kejimkujik (Medway: 0.001mg L^{-1} yr^{-1}).

Deposition and river export for H^+ and SO_4^{-2} remained unchanged for all sites over the entire study interval (Table II). Nitrate deposition increased at three of the four monitoring sites (Bay D'Espoir: 0.03 kg/ha/yr, Harcourt: 0.01 kg/ha/yr, Kejimkujik: 0.05 kg/ha/yr), while none of the river sites showed any change in export.

Over the entire study interval, all trends detected in precipitation and river chemistry were increasing, with the exception of the decrease in hydrogen concentration noted for the Piper's Hole river site. Trends in precipitation were not directly paralleled in river chemistry, and in some cases trends were present in rivers when no such trend was evident in precipitation.

3.2. TRENDS OVER FIVE-YEAR SUBINTERVALS

Trend analysis on each of the five-year subintervals showed that none in the entire study interval were strictly monotonic. Overall trends were the result of changes that occurred over a shorter interval, spanning at most four contiguous subintervals, equivalent to 6.5 years (e.g., Bay D'Espoir and Harcourt nitrate deposition). In addition, a number of sites which did not exhibit a trend in the overall study interval had measurable trends in the subinterval analysis. These trends consisted mainly of decreases in early subintervals and/or increases in late subintervals. For example, sulfate deposition at Jackson shows no trend when the overall study interval is examined, but a decreasing trend is indicated for the first two subintervals. Similarly, hydrogen deposition at Bay D'Espoir shows no trend in the overall interval, yet increases are present in the two final subintervals. More notably, nitrate concentration and export for the Salmon river show no overall trend, but subinterval analysis shows that the river actually experienced decreases early in the study interval, followed by increases later in the interval. A similar pattern can be seen at Piper's Hole and Mersey (nitrate concentration) and Salmon (hydrogen and sulfate export, see Table II).

The presence of single trends in one five-year subinterval, in the absence of a trend for the entire study interval should be regarded as suspicious because a certain number of spurious trends are to be expected when conducting such a large number of statistical tests at the 95% confidence level.

Nitrate trends for precipitation seem to show evidence of geographic and temporal distribution. Increases occur earliest in southwest Nova Scotia and latest at Bay D'Espoir (southeast Newfoundland). This may reflect a delay in onset of increases due to changing weather patterns. The onset of trends for NO_3^- in river chemistry may be affected by local basin characteristics for some sites. Increases in NO_3^- at the Harcourt precipitation site appeared immediately in the Salmon river, but increases at Kejimkujik were lagged as with concentration or never appeared as with export in the Mersey and Medway rivers.

4. Conclusion

Our study indicates that levels of H^+, SO_4^{-2} and especially NO_3^- in rainfall and river chemistry for Atlantic Canada generally increased in the period 1983-1991. However, trend analysis of the entire study interval often failed to detect short-term trends and was inadequate for relating trends in precipitation to trends in river chemistry. Analysis of five year sub-intervals revealed decreases early in the study interval, offset by increases later in the period. Subinterval analysis also gave better agreement between atmospheric deposition and export trends, and between precipitation sites vs. respective rivers. Additionally, subinterval analysis allowed examination of geographic and temporal distribution of trends, and the effect of basin hydrology on the onset of trends.

Acknowledgments

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Trends in pH, calcium, and sulfate of rivers in Atlantic Canada

Abstract—Acid precipitation is affecting the chemistry of rivers in Atlantic Canada. Long term records for pH, calcium, and sulfate from 11 rivers were fitted using time series models. Decreases in pH over time were found, but the results for calcium and sulfate were not consistent with the predicted model. The conceptual models used to understand the effects of acid precipitation on water chemistry did not adequately explain the observed changes.

A problem of great concern in Atlantic Canada is the change in surface water chemistry resulting from acid precipitation. Shaw (1979) reported that from 2.2 to 3.2 $\mathrm{kg \cdot ha^{-1} \cdot month^{-1}}$ of sulfate was deposited in New Brunswick, Nova Scotia, Prince Edward Island, and western Newfoundland from May 1977 to March 1978. Eastern Newfoundland and Labrador received about 1.8 $\mathrm{kg \cdot ha^{-1} \cdot month^{-1}}$. Another ion associated with acidification, nitrate, was deposited at rates varying from 0.2 to 1.5 $\mathrm{kg \cdot ha^{-1} \cdot month^{-1}}$. Most of the contaminants originate downwind, in the populated areas on the eastern seaboard of the U.S. and the St. Lawrence–Great Lakes region of Canada and the U.S. (Shaw 1979). The effects of acid precipitation on aquatic systems have been documented beginning as early as 1875 in the northeastern United States, with acceleration of deposition rates beginning before 1940 (Hanson et al. 1982). From 1956 to 1973, mean annual rainwater pH in the state of Maine decreased from 4.96 to 4.76 (Cobgill 1976), similar to values measured in Atlantic Canada by Environment Canada (Canadian Network for Sampling Precipitation: CANSAP).

The manner in which acid precipitation affects surface water chemistry depends on the buffering capacity of the local bedrock (Kramer 1978). In a well buffered watershed, with easily available calcium carbonate, precipitation low in pH is neutralized by the bedrock and the original pH values of the surface waters are maintained or decreased minimally, although increases in sulfate, nitrate, and calcium from the neutralization of sulfuric and nitric acids by $CaCO_3$ should be expected. On the other hand, in a poorly buffered watershed, pH should decrease with time due to excess hydrogen ions; sulfate and nitrate should increase, as more is being deposited, while calcium levels should be low and unchanging, as there is little of it being dissolved at low bedrock levels of $CaCO_3$ (Henriksen 1980).

The sensitivity of a watershed to acid precipitation can be considered in terms of a calcite saturation index (CSI), calculated from

$$\mathrm{CSI} = \log_{10}([\mathrm{Ca}] \cdot K_2 \cdot [\mathrm{alk}]) \cdot (4 \times 10^4 \cdot [\mathrm{H}])^{-1} + \log_{10} K_{\mathrm{CaCO_3}}$$

where [Ca] and [alk] are the concentrations of calcium and alkalinity in $\mathrm{mg \cdot liter^{-1}}$, [H] is the hydrogen ion concentration in $\mathrm{equiv \cdot liter^{-1}}$, and $K_{\mathrm{CaCO_3}}$ and K_2 are the dissociation constants for $CaCO_3$ and carbonic acid. CSI values of water greater than -3 are deemed insensitive and those lower are assumed sensitive to acid precipitation (Conroy et al. 1974). Using this criterion, we classified 11 rivers in Atlantic Canada.

Detection of temporal trends in rivers is difficult. Thompson et al. (1980) have shown decreases in pH and calcium in three rivers of Nova Scotia between 1954–1956 and 1973, but their data came from two discrete sampling programs separated by 20 years. Few programs have the benefit of such widely spaced data sets; many contain regularly spaced samples collected over considerably shorter periods of time. Classical tests for the determination of trends, both parametric and nonparametric, assume that observations

Table 1. River locations, dates of sampling, and percent of observations that are missing.

			Observations	
River	Province	Dates sampled	Missing (%)	Total
Inhabitants	Nova Scotia	Mar 68–Dec 73	0	70
Northeast Margaree	Nova Soctia	Aug 65–Dec 73	2	101
Mill	Prince Edward Island	Aug 67–Mar 74	4	79
Medway	Nova Scotia	Aug 65–Dec 78	2	101
Mersey	Nova Scotia	Apr 69–Jan 73	3.5	57
St. Mary's	Nova Scotia	Aug 65–Dec 73	2	101
Lepreau	New Brunswick	May 69–Dec 73	3.6	56
Isle aux Morts	Newfoundland	Jan 69–Mar 79	6.5	123
Rocky	Newfoundland	Nov 66–Jun 77	3.9	129
Piper's Hole	Newfoundland	Jul 69–Jul 77	5.2	96
Terra Nova	Newfoundland	Aug 69–Nov 78	10.7	112

are independent, a condition rarely encountered in time series collections (Lettenmaier 1976). Also, changes in the relationship with discharge cannot be used, since the residuals are serially correlated (Whitfield and Schreier 1981).

Seasonal variability of pH is well known. In southern Canada, pH levels are highest during low flow periods and sharply depressed during snowmelt. The evaluation of trends must make allowances for such variations without obscuring long term changes in mean levels.

We have undertaken to use the time series analysis techniques of Box and Jenkins (1976) to determine whether the parameters of interest vary about a constant mean (i.e. a stationary process) or whether the process has no natural mean (i.e. a nonstationary process). We tried to fit two stochastic models to the data: seasonal stationary and seasonal nonstationary. We examine here the occurrence of nonstationary processes in relation to the sensitivity of 11 rivers in Atlantic Canada and assess the accuracy of the geochemical models based on the results.

We thank T. L. Pollock, G. A. Nielsen, and R. Howatt for their help and comments.

The 11 rivers were chosen on the basis of the following criteria: samples had been collected at monthly intervals; the period of record was 5 years or greater; and, no >10% of the values from any record were missing. Missing data were estimated by averaging the values 12 months earlier and 12 months later. These data were obtained from Environment Canada (National Water Quality Data Bank: NAQUADAT). Table 1 provides some background information on the rivers and their locations are shown in Fig. 1.

The data were analyzed using the time series methods of Box and Jenkins (1976) with BMDQ2T, an experimental version of a time series program in the BMDP series of statistical computer programs (Univ. Calif. Los Angeles BMDP Tech. Rep. 57). In fitting the seasonal stationary and seasonal nonstationary models to the data we examined the autocorrelation function of the original data series and of each series differenced by 1 (for stationarity) and by 12 (for seasonality). The best-fit model was selected on the basis of the portmanteau lack-of-fit test (Box and Jenkins 1976) and a judgment on the autocorrelation function of the residuals. The model which had the highest probability Q_{24} value was chosen as long as it did not exceed the critical Q_{22} value of 33.9 at 95% probability. All series were originally assumed to be seasonal and stationary.

A summary of the results of the analysis and those expected on the basis of the conceptual model is shown in Table 2. In cases where either stationary or nonstationary models could be used, the stationary model was chosen unless a trend was evident in the autocorrelation function of the residuals of the seasonal models. All the models were assumed to

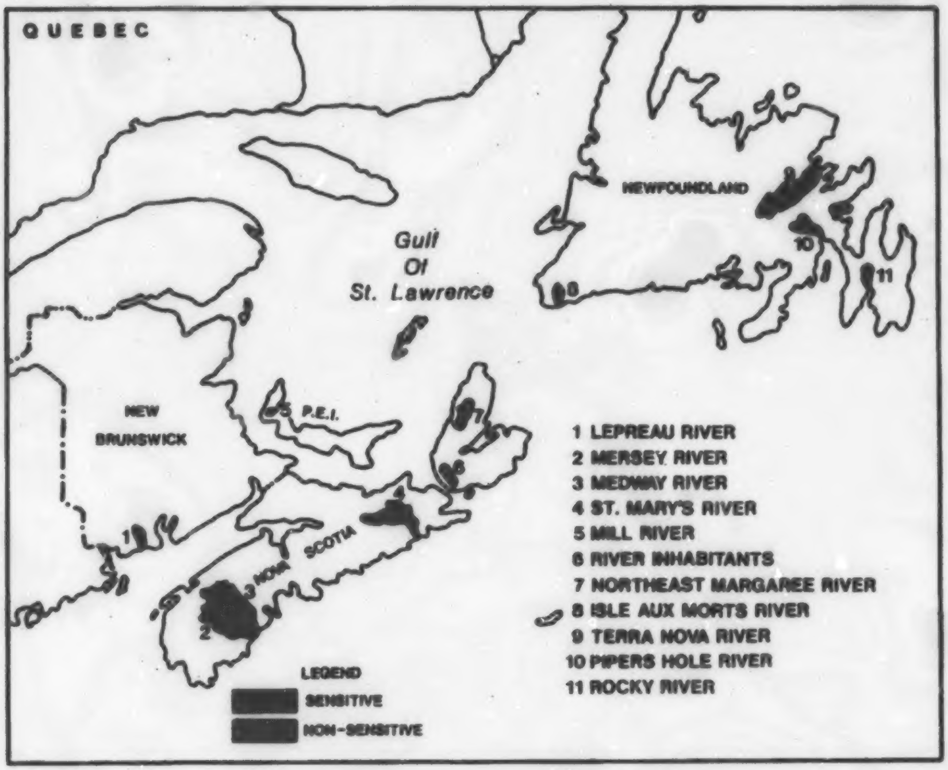
QUEBEC
Gulf Of St. Lawrence
NEWFOUNDLAND
NEW BRUNSWICK
P.E.I.
NOVA SCOTIA
1 LEPREAU RIVER
2 MERSEY RIVER
3 MEDWAY RIVER
4 ST. MARY'S RIVER
5 MILL RIVER
6 RIVER INHABITANTS
7 NORTHEAST MARGAREE RIVER
8 ISLE AUX MORTS RIVER
9 TERRA NOVA RIVER
10 PIPERS HOLE RIVER
11 ROCKY RIVER
LEGEND
SENSITIVE
NON-SENSITIVE

Fig. 1. Locations of the 11 watersheds examined.

have a seasonal component, since plots of the data showed seasonal cycles (Fig. 2).

Six parameters were considered initially: pH, calcium, sulfate, alkalinity, nitrate, and discharge. Nitrate was not included in the analysis because there were very few measurements. Alkalinity and discharge were also eliminated; alkalinity measurements were mostly below the detection limit of 10 μeq·liter^{-1} and discharge values were nonnormal even after log transformation. Annual discharges should be stationary over the years, since there were no changes in controls on any of the rivers.

In general, one or the other model provided an adequate fit to the data. In the five cases (of 33) where neither the stationary nor the nonstationary model provided an adequate fit, the lack of fit is

Table 2. Summary of best-fit analysis of time series for pH, calcium, and sulfate using stationary and nonstationary seasonal Box-Jenkins models along with expected results based on conceptual models.

	CSI	pH	Calcium	Sulfate
	Insensitive rivers			
Expected		S	+	+
Northeast Margaree	−2.3	S	NF	+
Inhabitants	−2.0	+	S	S
Mill	−0.8	S	+	S
	Sensitive rivers			
Expected		−	S	+
Medway	−5.7	−	−	−
Mersey	−6.3	S	−	−
St. Mary's	−4.7	NF	NF	+
Lepreau	−4.7	S	−	−
Isle aux Morts	−5.0	−	NF	S
Rocky	−4.3	−	S	S
Piper's Hole	−4.2	S	+	NF
Terra Nova	−4.9	−	S	+

Key to symbols: S, stationary, no trend; +, increasing trend; −, decreasing trend; NF, neither model fitted.

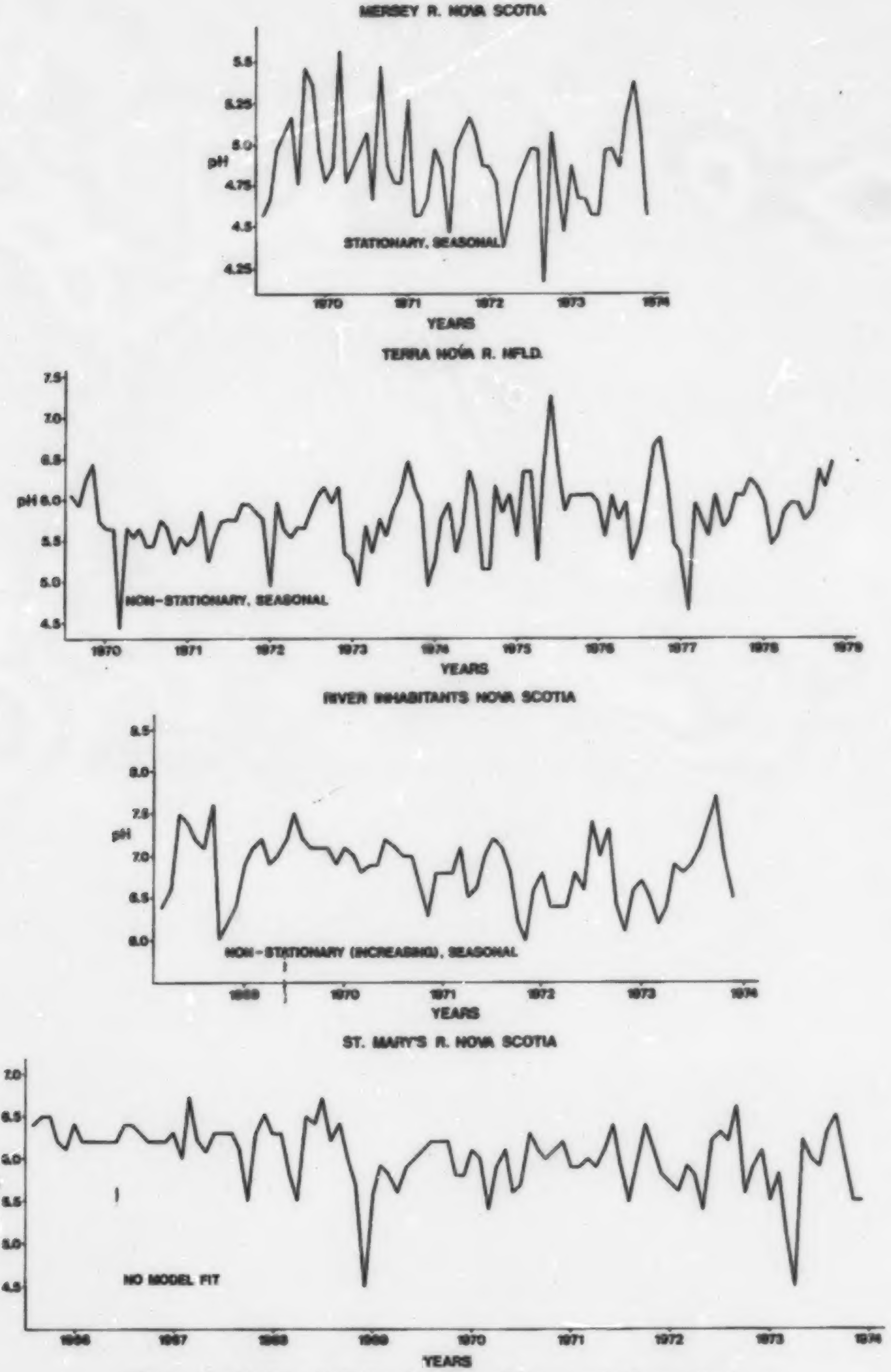

Fig. 2. Serial plots of pH data from four of the watersheds examined.

believed to result from skewness in the data set due to high spring flows.

The three rivers that were considered to be insensitive to acid precipitation did not show decreases in pH. In fact, the River Inhabitants showed an increase in pH over time, but as it is located in a gypsum-rich area this could have been caused by human disturbance such as mining or road construction. The insensitive rivers were expected to show increases in both calcium and sulfate as the result of inputs of acid precipitation: the Mill River increased in calcium as expected but the River Inhabitants appeared to remain stationary. The calcium data from the Northeast Margaree was not adequately fit by either model. Only the Northeast Margaree showed the expected increase in sulfate, while the other two appeared to be stationary.

Trends in pH in the sensitive rivers were all either decreasing or stationary. Of the rivers which were stationary, the Mersey had a mean pH of 4.9 over the study period and is not likely to be further depressed, while the Lepreau was studied for a very short period. The Piper's Hole River was the least sensitive of this group of rivers and might be more resistant to acid inputs than the CSI indicates.

Sulfate trends cannot be generalized, but vary from watershed to watershed. The simple model taking into account only the sulfate precipitation input and river output does not adequately describe the geochemical changes which can occur, so that we can only suggest that the processes involved are more complicated than those suggested by the model. Similarly, only two of the sensitive rivers were found to agree with the calcium model while three showed decreasing trends and one increasing. Of the five data sets which did not adequately fit either model, three were of calcium values and one each of pH and sulfate. Neither model provided a good fit for the pH and calcium data from the St. Mary's River (Nova Scotia). Both of these sets are long (8 years), so we consider the lack of fit to be due to skewness in the data, making them unsuitable for this type of analysis without transformation.

Model predictions were made so we could assess the magnitude of changes in parameter levels, but since calibration and validation of the predictive models require an additional 3–5 years of data, none of the predicted rates of change in parameter levels could be properly validated.

Acid precipitation was expected to affect sensitive watersheds by decreases in pH with corresponding increases in sulfate. Overall, the conceptual models applied satisfactorily for pH but in only a limited number of cases for the other parameters. Careful re-evaluation of the models should be made with respect to other active processes, particularly changes in calcium and sulfate levels. More work should also be done in considering the contribution of nitric acids to geochemical models.

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ACID PRECIPITATION-RELATED CHEMICAL TRENDS IN 18 RIVERS OF ATLANTIC CANADA – 1983 TO 1992

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Abstract. Using non-parametric techniques, we studied water chemistry changes from 1983 to 1992 in 18 rivers located at the extreme northeastern portion of North America. This period was marked by a decrease in sulfate (SO_4^{-2}) production in eastern Canada from 1982 to 1986, followed by a levelling off from 1986 to 1992. Nitrate (NO_3^-)production and deposition generally increased over this whole period. We used two time windows, 1983 to 1989 and 1983 to 1992, to determine if changes in river acidification variables occurred over the ten year period. We found significant trends of increasing pH and acid neutralization capacity (ANC) concentrations at eight sites using both time windows, while SO_4^{-2} increased at five and seven sites during the same two time periods. Nitrate concentrations showed few consistent trends, while base cations showed increases in the earlier part of the data set and total organic carbon (TOC) showed long-term decreases. There were few significant trends in hydrogen (H^+), and a slight decrease in SO_4^{-2} exports as opposed to increased concentrations over the same period. We attribute the discrepancy between SO_4^{-2} concentration and export trends to be due to evapotranspiration in the basins, causing a concentration of ions in water. Nitrate and calcium exports showed no trends, while TOC decreased at four or five sites, depending on the time window used. Longer data sets tended to produce more detectable trends. Overall, water chemistry in the region is showing the effects of reduced SO_4^- loads and is not yet being affected by the increases in NO_3^- deposition.

1. Introduction

An environmental problem of concern in large parts of the northern hemisphere is acid precipitation. Industrial and transportation activities produce sulfur and nitrogen oxides which are converted to the anions sulfate (SO_4^{-2}), nitrate (NO_3^-) and the cation hydrogen (H^+) in the atmosphere. Atmospheric processes subsequently transport and deposit these ions, often hundreds of kilometres from their sources.

Canadian legislation introduced in 1985 and the U.S. Clean Air Act of 1992 require the reduction of acidic emissions in the expectation that this wll improve or correct some of the environmental effects ascribed to acidification (Schindler *et al.*, 1989). One of the mandates given to Environment Canada concerning acidic precipitation was to determine whether or not the decreases in acids produced by polluters in North America was actually reflected by the aquatic environment. Reductions in acid precipitation should lead to decreases in concentrations of H^+, SO_4^{-2} and NO_3^- in surface waters as well as changes in acid neutralization capacity (ANC) and base cation concentrations.

Both rivers and lakes can be used in surface water monitoring networks. There is however an advantage in using rivers, because they usually integrate effects of

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larger basins and also allow the estimation of ion budgets if discharge is measured simultaneously. Estimating trends in ion exports from basins also provides a useful complement to the assessment of trends in ion concentration which can be influenced by a number of hydrological and climate factors.

A number of recent studies have studied river chemistry trends in eastern North America. Clair and Whitfield (1983), using information collected in Atlantic Canada during the late 1960's to late 1070's at a time of increasing acidic deposition, showed decreasing pH and increases in SO_4^{-2} in a number of rivers. Lettenmaier *et al.* (1991) analyzed water quality trends using samples collected from 1978 to 1987 in rivers forming part of the USGS National Stream Quality Accounting Network (NASQAN). They showed conflicting trends in acidification-related variables, with pH and alkalinity increasing and SO_4^{-2}, the main conservative tracer of anthropogenic acidification, increasing.

Recent work in Atlantic Canada by Clair *et al.* (1995) showed that in 80 lakes sampled from 1983 to 1992, increases in pH and ANC and decreases in lake SO_4^{-2} concentrations occurred. Kahl *et al.* (1993) showed that in nearby Maine, SO_4^{-2} also decreased while ANC increased. We were interested to see if the chemical trends measured in the lakes also occurred in rivers.

One of the main operating principles of monitoring networks is that the longer the data set, the better the chance of detecting trends, because more data will be available upon which to do statistical testing. This approach begs the question of whether short-term trends in data could be lost if only the longer series were analyzed. This means that the time window used for trend analysis could be of consequence in determining the effectiveness of pollution control programs, especially if changes occur quickly or reversibly.

This paper reports on trend analysis results measured from 18 rivers located in Atlantic Canada for a ten year period from January 1983 to December 1992. We analyzed for trends of SO_4^{-2}, NO_3^-, H^+, as well as ANC and Ca^{+2}. We also evaluated trends in export values of the above variables. In order to see if trends were affected by the time window used, we divided the data for each variable at each river into two sets, the first, a shorter set which went from 1983 to 1989 and the second including all data available, from 1983 to 1992.

2. Area and Methods

Environment Canada operates a freshwater acidification monitoring network in the southern portion of Atlantic Canada composed of 18 rivers (Figure 1, Table I). The study area includes three provinces, New Brunswick, Nova Scotia and Newfoundland (excluding Labrador). The sites were chosen because long-term chemical and hydrological data existed, and the basins covered most of its major land types. The basins are scattered in an area occupying more than 260 000 km^2 at the extreme NE portion of North America. The region's geology is varied, with many instances

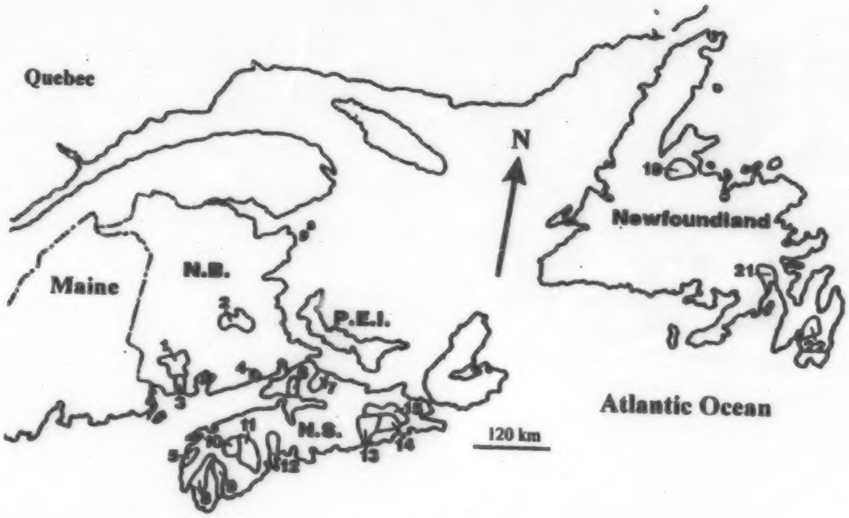

Fig. 1. Location of river basins studied and deposition monitoring sites. Sites are named and described in Table I. Atmospheric depositions sites are Kejimkujik, Basin 10, Jackson, Basin 6, Harcouts, Basin 2, and Bay D'Espoir, 100 km west of Basin 21.

of river basins crossing several types of bedrock with widely varying acid neutralization capacities. All of these basins are located in undisturbed areas with little habitation.

Atmospheric deposition data was collected by Environment Canada's CAPMoN monitoring network. Precipitation samples were collected on an event basis at four sites in Atlantic Canada: Kejimkujik in southwestern Nova Scotia (Basin 10, Figure 1), Jackson in northern Nova Scotia (Basin 6, Figure 1), Harcourt in central new Brunswick (Basin 2, Figure 1) and Bay D'Espoir in Newfoundland (100 km west of Basin 21, Figure 1). Because seaspray impacts the chemistry of surface waters in coastal areas, the seasalt component of rivers chemistry was removed from SO_4^{-2}, NO_3^-, and Ca^{+2} to provide an accurate picture of weathering and anthropogenic effects on water chemistry. This was done using the method described by Clair and Whitfield (1983), where Cl^- is used as the tracer.

Water samples were collected monthly at stream gauging stations. Daily surface water discharge values were extracted from Inland Waters Directorate, Environment Canada, Discharge Data summaries. These data are estimated to be accurate to within ±- 5% of actual values (IWD 1984–1992).

Analysis of water chemistry was done using the following methods: (a) pH was measured in the laboratory potentiometrically; (b) total organic carbon (TOC) was analyzed from unfiltered samples using a persulfate–ultraviolet wet oxidation method; (c) ANC was measured using the Gran titration method and is reported

TABLE I

Name, location, area, runoff, and average slope of basins under study

River	Map no.	Catchment area (km^2)	Runoff ($m\ yr^{-1}$)	Average slope (m/km)
N.Br. Oromocto	1	557	0.64	4.4
Salmon	2	1050	0.59	2.2
Lepreau	3	239	0.83	6.4
Point Wolfe	4	130	1.00	13.1
Meteghan	5	167	0.74	2.8
Kelley	6	63	0.79	4.8
Wallace	7	298	0.88	14.8
Tusket	8	1070	0.88	2.6
Roseway	9	495	0.98	2.3
Mersey	10	270	0.89	2.2
Medway	11	1390	0.88	2.6
LaHave	12	1250	0.83	3.2
Liscomb	13	389	1.05	3.4
St. Mary's	14	1350	1.00	2.8
Clam Harbour	15	45	1.09	8.9
Indian	19	9.74	0.53	14.4
Piper's Hole	21	764	1.01	6.07
Rocky	22	285	1.19	2.0

as HCO_3^-, (d) SO_4^{-2} and NO_3^- were analyzed by ion chromatography; (e) Ca^{+2} by atomic absorption spectrophotometry; and (f) Cl^- was measured using a specific ion electrode or by ion chromatography.

We used the statistical software, 'DETECT' developed and described by Cluis *et al.* (1989) to estimate variable trends. Because no sudden changes were expected of the acid input, we only tested for monotonic trends. The test selection was based on the presence of estimated seasonality and serial correlation (Markovian and non-Markovian persistence). If no persistence or seasonality were measured in the data, Kendall test (Hirsh *et al.*, 1982) was used. If there was no persistence, but seasonality existed, we used the Kendall Seasonal test (Hirsh *et al.*, 1982). When there was both persistence and seasonality, the Hirsh and Slack test (1984) was chosen, and when there was persistence, but no seasonality, the Spearman/Lettenmaier test (Lettenmaier, 1976) was selected.

Persistence in the data was calculated by analyzing the first order correlation coefficients of the data series and their associated standard deviations. There is no persistence if the first correlation coefficient is not significantly different from zero. Seasonality in the data is assessed by comparing monthly means. If they were significantly different, then seasonality was present. Once all the data sets were

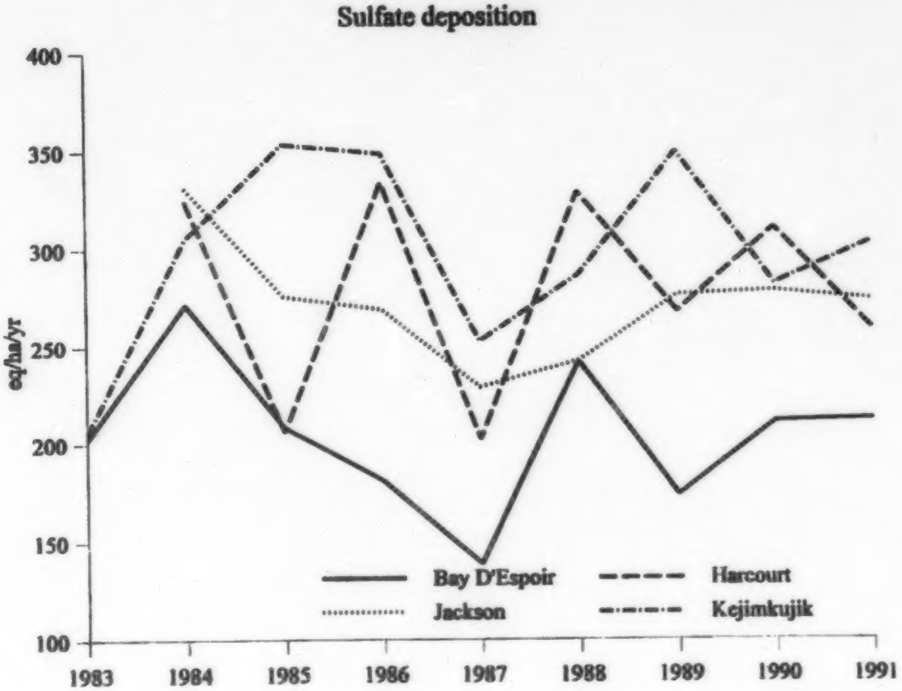

Fig. 2a.

analyzed, results showed that because all data tended to be seasonal, the Kendall seasonal or the Spearman/Lettenmaier tests provided the best results for most cases studied. A trend was only considered significant if its probability of occurring was greater than 95%. When seasonality was absent, but persistence present, missing daily export values were generated by temporal interpolation of the export series. When seasonality was present, the missing daily export value was replaced with the mean value for the same month in other years.

The DETECT software also estimates export trends using the ion export for the day where a water sample was collected (i.e. daily concentration × daily discharge). Months with no days sampled had data estimated by interpolation methods. The estimation of ion exports and thus of ion export trends is also controversial because of the difficulty of taking the large variability of discharge as opposed to concentrations into consideration. In order to try to partly address this concern, we used data collected from the Mersey river to see what influence the export calculation method had on actual ion estimates. We suspected that if daily export calculations provided reasonable estimates of annual exports, then the export trends we calculated would seem reasonable.

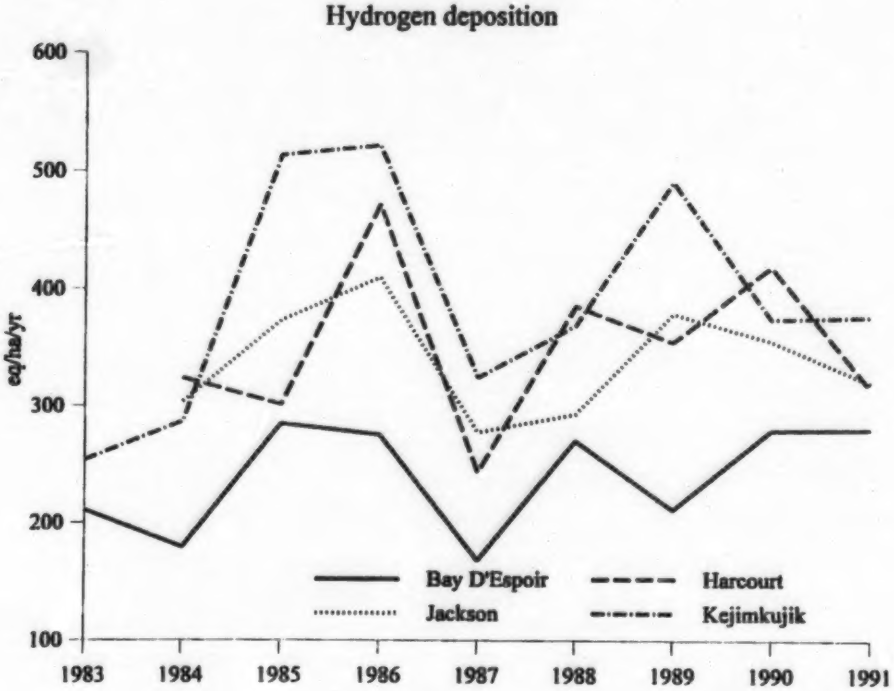

Fig. 2b.

From 1981 to 1983, the Mersey River (Basin 10, Figure 1) was sampled daily for discharge and water chemistry. Annual exports of ions were calculated three ways: (a) multiplying daily discharge by daily ion concentration and summing for the year, which gives the most accurate value; (b) multiplying the one daily concentration measured by the flow on the sampling day and then multiplying this value by the number of days in the month; and (c) multiplying the one monthly ion concentration by each daily discharge value for the month. The method used by DETECT for estimating trends in exports was similar in concept to (b).

As we were trying to determine whether short-term trends would go undetected in long-term data series, we determined that a minimum length data set of seven years was required to use the trend detection technique efficiently. Trend analysis of the river data was carried out on the whole 10-year period and a 7-year subset (1983 to 1992 and 1983 to 1989).

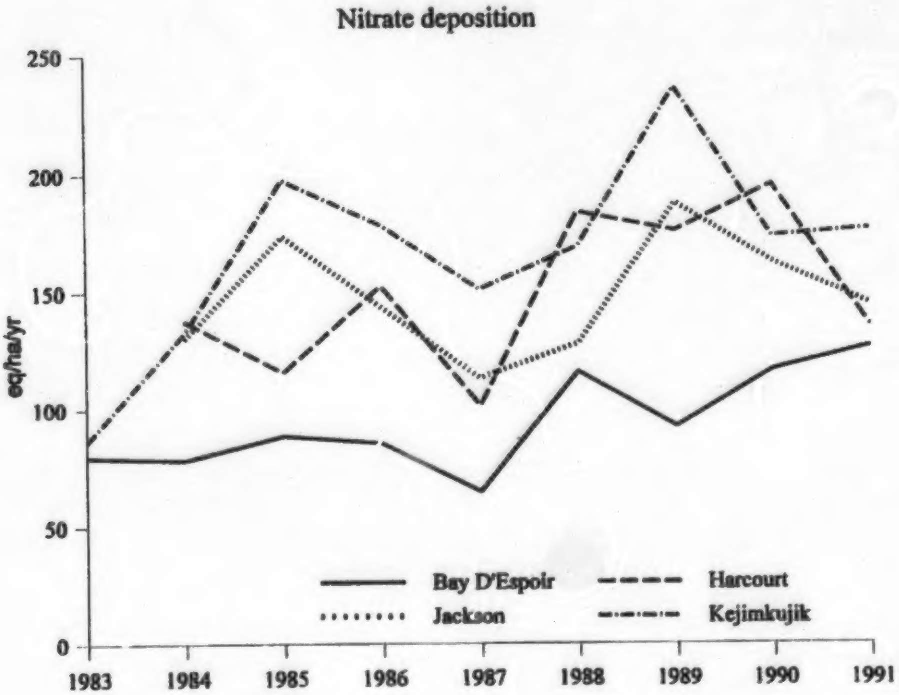

Fig. 2c.

Figs. 2(a)–(2c). (a) Sulfate deposition values at the four CAPMoN sites in the study region. (b) Hydrogen deposition values at the four CAPMoN sites in the study region. (c) Nitrate deposition values at the four CAPMoN sites in the study region.

3. Results and Discusion

3.1. ATMOSPHERIC DEPOSITION

Deposition of SO_4^{-2} and H^+ at the four Atlantic Canada CAPMoN sites showed no clear trends from 1983 to 1992 (Figure 2a, b). Sulfate tended to show a slight decrease or steady level in deposition at the four regional sites. Values varied annually at all sites, though the two Nova Scotia sites (Kejimkujik and Jackson) tended to follow the same patterns, while the New Brunswick and Newfoundland sites (Bay D'Espoir and Harcourt) also followed similar patterns, which were different from of the other two sites.

Annual differences in regional deposition could not be correlated to national emissions patterns. No site showed strong long-term decreases in SO_4^{-2} even though Vet *et al.* (1994) showed a 25% decrease in SO_4^{-2} production and deposition in eastern Canada (which included Ontario and Québec, as well as our study area) from 1980 to 1986. After 1986, SO_4^{-2} production stabilized.

Hydrogen deposition (Figure 2b) also showed no clear trend at any of the sites, except for the types of annual changes which were noted with SO_4^{-2}. Lowest deposition was at Bay D'Espoir in Newfoundland, the most northeasterly site, while the greatest deposition was at Kejimkujik, the most southwesterly site, located closest to the continental North American sources.

Nitrate deposition, on the other hand, showed a general increase over the whole study period at all four sites (Figure 2c), though there was also annual variation in the data. The two Nova Scotia sites once again generally tracked each other, while the New Brunswick and Newfoundland sites also were in step. Vet *et al.* (1994) also showed increases in NO_3^- production and deposition for all of eastern Canada and our data showed that this was reflected by the deposition patterns in our region.

3.2. RIVER CHEMISTRY TRENDS

One of the more useful tracers of acidification is SO_4^{-2} because it can be considered to behave conservatively in basins. Compared to H^+ and NO_3^-, it is little used in biotic or chemical reactions, and thus provides a good tracer of sulfuric acid inputs. Seven of 28 rivers showed increasing SO_4^{-2} concentrations trends over the whole study period, while five had increasing trends in the 1983–1989 data set (Table II). When trends in daily exports were studied, however (Table III), three sites showed decreasing trends from 1983 to 1992, while five sites showed decreasing trends over the shorter period. One site showed SO_4^{-2} daily export increases using both time windows, while the remaining sites showed no trends.

These data suggested that changes in hydrology were affecting basin chemistry. As exports were calculated by multiplying daily discharge (Q) with daily ion concentration (see Figure 3, a typical river in the network), a decreasing daily export trend would indicate that Q must also be decreasing when concentration is increasing, to account for the difference in trend direction. Trend analysis of Q showed only two sites with decreasing trends from 1983 to 1989 however and only one from 1983 to 1992. The lack of corroborative trends is probably due to the large seasonal and annual variability exhibited by discharge alone which would tend to mask any long-term changes.

In order to see if the daily export value was indicative of actual ion export trends, we studied the results from the export calculation exercise described in section 2, as we assumed that if the DETECT export calculation approach produced data which reasonably described annual exports, it would also be reasonable to assume the method was suitable for trend analysis. For SO_4^{-2}, the most accurate calculation, daily concentration-discharge estimate summed for the year (calculation method a), estimated 2660 keq year^{-1} exported from the Mersey River. Method (b), which is equivalent to be approach used by DETECT to produce export data for trend

TABLE II

Summary of concentrations trends using two time windows, for 18 rivers located in Atlantic Canada. The arrow directions denote the trend direction

	SO_4^{-2}		NO_3^-		H^+		ANC		TOC		Ca^{+2}	
Years	83–89	83–92	83–89	83–92	83–89	83–92	83–89	83–92	83–89	83–92	83–89	83–92
↔	13	11	17	13	10	10	10	10	10	3	9	14
↑	5	7	0	3	0	0	8	8	0	0	8	1
↓	0	0	1	2	8	8	0	0	8	15	1	3

TABLE III

Summary of export (mass load) trends using two time windows, for 18 rivers located in Atlantic Canada. The arrow directions denote the trend direction

	SO_4^{-2}		NO_3^-		H^+		ANC		TOC		Ca^{+2}	
Years	83–89	83–92	83–89	83–92	83–89	83–92	83–89	83–92	83–89	83–92	83–89	83–92
↔	12	14	17	16	16	18	17	12	14	13	17	17
↑	1	1	1	0	0	0	1	6	0	0	1	1
↓	5	3	1	1	2	0	0	0	4	5	0	0

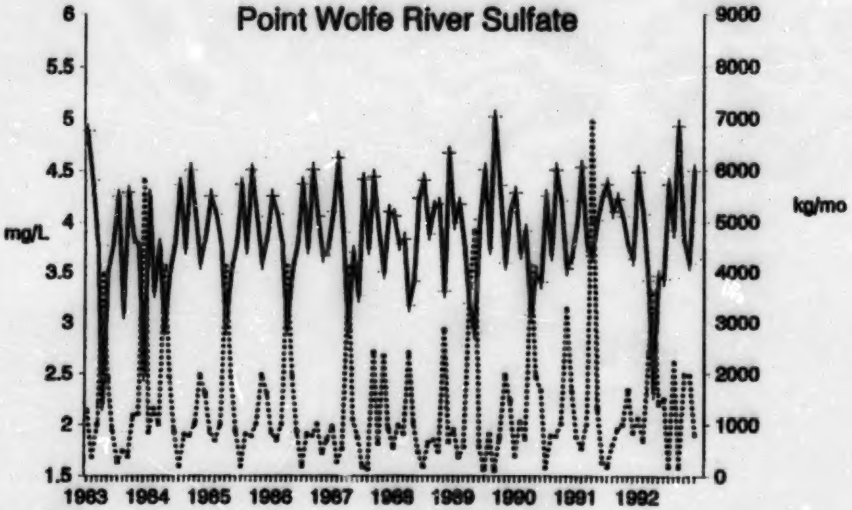

Fig. 3. Sulfate concentrations (solid line) and exports (dashed line), Point Wolfe River, New Brunswick.

analysis, estimated 2554 keq $year^{-1}$, while method (c) gave a slightly more accurate estimate of 2681 keq $years^{-1}$. The DETECT approach thus produced and used data which produced reasonable export estimates for SO_4^{-2} (though the other method was somewhat better) and we feel that it is also suitable for studying trends in exports.

We also compared the calculations for H^+ and NO_3^- using the three methods. The most accurate export estimate was 334 keq $year^{-1}$ for H^+ and 208 keq $year^{-1}$ for NO_3^-. The export method equivalent to the DETECT format produced estimates of 313.9 keq $year^{-1}$ for H^+ and 517 keq $year^{-1}$ for NO_3^-. The H^+ estimate was again somewhat low, but reasonably close, while the NO_3^- estimate was more than half of the actual value. Again, the third method was somewhat better for H^+ with an estimate of 339 keq $year^{-1}$, though the NO_3^- estimate was also very poor (504 keq $year^{-1}$).

The other acidification anion, NO_3^-, is also a nutrient and is not conservative in these basins which often tend to be nurient-poor. Moreover, over three-quarters of the water samples analyzed showed values below the analytical detection limit. In order to do the trend analysis, the detection limit values were considered to be the actual values. The use of detection levels as real values clearly has major implications in the trend detection, most likely biasing the results to show no trends where some trends may actually occur. The analysis is also inordinately affected by infrequent high values which may occur, as is often the case during winter and spring.

These results suggest that estimating NO_3^- exports and thus also export trends can only be done with more intensive sampling than we are capable of doing with our network. This is reflected in the trend analysis results (Tables II, III) where few trends are measured and where, if NO_3^- trends are estimated, they are often contradictory, with no clear pattern established.

Though there may be some question concerning the accuracy of export trends, two factors suggest that the values reflect real conditions. First, comparison of export amounts calculated using the DETECT computational method with very accurate values at one typical basin, suggests that the approach is relatively robust for most ions studies here, except for NO_3^-. Second, trends, where they occur, are generally in the same direction for individual ions, but that different ions move in different directions. If there were a bias introduced by our approach, it should be in the same direction for all ions. We therefore have some confidence that the results from this analysis are not unreasonable.

Clair and Jeffries (1992) extended this calculation for Ca^{+2}, Cl^-, and Na^+ in the Mersey River and once more confirmed that our calculation approach was adequate for export estimates. We think that the results from the Mersey River are applicable to the other sites because the most important factors determining the adequacy of our approach are that the basins be large enough so that major changes in flow will occur over a number of weeks instead of within days or hours as in small basins, and thus will be noted by the discharge and water chemistry sampling record. It is also important that few detection level values be used which can bias the data set.

Comparison of SO_4^{-2} concentration trends using the two time windows showed that they behaved the same in both early and full series (Table II), with all the sites showing changes having increasing trends (five sites, 1983–1989; Seven sites, 1983–1992). SO_4^{-2} exports, on the other hand, showed five sites with decreasing values in the early data set and three sites showing decreases in the complete data set. One site showed increasing exports using both the short and long data sets. These data supports the idea that SO_4^{-2} amounts leaving basins are following the changes in deposition.

Trend analysis of H^+ concentration showed that eight of the 18 rivers had decreases from 1983 to 1989, with none showing increases (Table II). The same result was found using the longer data set. The sites showing decreasing acidity were scattered throughout the region and not confined to any specific area, suggesting that acidity reduction was generalized throughout the region. Hydrogen export trends (Table III) followed a different pattern from concentrations, with both time windows showing few or no sites changing. Both long and short export time series provided roughly the same information, with 16 of 18 sites showing no trends in 1983–1989 and no sites with trends using the complete data set. As biota is impacted by acidity concentrations as opposed to exports, our results suggest improving conditions for aquatic life.

ANC concentrations showed identical patterns for both time series (Table II), with 10 sites showing no trends and eight showing increases. Export trends were less similar as five more sites showed increases in the longer time series than in the shorter one (Table III). ANC export is the only acidification variable in the whole data set which shows any significant differences between the early and late data series, suggesting that in these geologically resistent basins, acidification conditions were improving especially near the end of the study period.

TOC is not directly affected by acid precipitation, as it is controlled mostly by the abundance of wetlands and hydrological conditions (Eckhardt and Moore, 1990). Concentrations of TOC showed somewhat different patterns over the two periods, with eight sites showing decreases from 1983–1989, as opposed to 15 sites in the longer series (Table II). The addition of extra years of data emphasized trends which were more obvious with the shorter series. It also suggests that runoff decreased over the time series, as was speculated from the increases in SO_4^{-2} which contradicted the deposition trends. TOC exports also showed that exports decreased at a smaller number of rivers, through it still corroborated the concentration data (Table III).

Calcium concentrations showed eight increasing trends in the early data set, compared to only one in the full. Three sites showed decreases in the later data, as opposed to one showing an increase. Calcium concentration trends clearly were different between the two periods, with increases occurring at a large number of sites only when the early data was considered. There was only one site showing export increases for each study period so that, overall, it can be assumed that there was little change in weathering in the basins over the study period. Trend analysis was also done on Mg^{+2}, aluminum, iron, manganese and organic nitrogen but none showed any predominance of up or downward trends.

A major pattern which can be seen in our data is that with few exceptions, where they occurred, trend directions of acidification related variables were the same regardless of the time window we used. The data seem to suggest that the slight decrease in SO_4^{-2} which was measured in deposition was mirrored in the export data during both periods. It also shows that basin hydrology plays an important role in determining ionic concentration values and their trend direction.

3.3. GEOCHEMICAL IMPLICATIONS

Concentrations of the main conservative acid tracer, SO_4^{-2}, increased at the Point Wolfe, Tusket, St Mary's and Indian Rivers which was surprising as it was counter to regional deposition trends (Figure 2). As mentioned above, hydrological and climatological factors are probably at play here because SO_4^{-2} exports did not themselves increase. Another factor which may be at work to explain increases in concentration is that it may reflect a delayed release from soils and plants of ions deposited prior to 1983 (Rochelle and Church, 1987), though the export data do not seem to support this explanation.

In basins with high amounts of calcareous material, decreases in acidity can lead to decreases in pH, ANC and Ca^{+2} because of less weathering of calcareous rocks (Kilham, 1982; Bricker and Rice, 1989) (Scenario 1). In regions with lower amounts of easily weatherable material, decreases in acidification will lead to increasing pH, decreasing ANC and decreasing Ca^{+2} (Scenario 2). Where bedrock contains little carbonate material, ANC originates from bicarbonate formation of atmospheric CO_2, which is independent of weathering rates, so that decreases in acidity will lead to increases in pH as well as ANC (Stumm and Morgan, 1981). Calcium, which is already low, will most likely not change significantly (Scenario 3).

The H^+ and ANC concentration data from this study tend to support the last of the three models for most of the sites we studied. The Ca^{+2} data, especially with the earlier data set, suggest an increase in weathering, while the full data set supports a decrease. It is quite likely that the earlier data are subject to the short-term hydrological concentration effect, and that the addition of new data help to give more accurate long-term assessment of geochemical trends.

Nitrate is considered a nutrient in the nutrient-poor ecosystems of the Atlantic Region, so on a long-term basis it was not expected to significantly impact other acidification-related variables. Because of its uptake by biological systems, it is not often measured at detectable levels, so that measured trends for both concentrations and exports are highly suspicious.

The main conclusion to be drawn from the analysis of concentration trends is that there seems to be a regional trend of reducing acidification, as shown by improvements in acidity and ANC. These improvements cannot be related to sulfate concentration, however, nor can base cations be used to show reduced weathering effects. The most important variable relating to background conditions is TOC and its trends are mostly affected by precipitation amounts (Clair *et al.*, 1994). Fifteen sites showed decreases in concentration over the full data set, which suggests drier conditions were occurring.

Trends in ion exports, as opposed to concentrations, were more useful in providing information on the geochemical processes occurring in the basins. Sulfate exports decreased at five sites, increased at one and showed no change at the remaining 12 in the 1983–1989 data, contradicting the concentration trends, where five sites showed increasing values. The SO_4^{-2} export results (Table III) showed that there was no SO_4^{-2} increase in the basins during the study period as suggested by the concentration values, but that there was perhaps an ion concentration effect caused by undetected decreases in precipitation or runoff.

Corresponding to the decreasing SO_4^{-2} exports and to the concentration trends, H^+ export trends also decreased at two sites in the early values (Table III), confirming that the waters in the region have been relieved of some acidification stress over the study period.

ANC export increased at only one site contrasting with the ANC concentration trends, where 11 sites showed increases (Tables II, III). Again, we assume that lower water flows leading to a concentration effect may have been responsible for the difference between these two sets of results. However, data from the longer set suggest that ANC exports were increasing in basins, especially in the latter part of the study period. In these poorly buffered environments, we see this trend as an indication that background bicarbonate alkalinity is increasing because less of it is being consumed by anthropogenic mineral acids.

Calcium exports, which are the product of weathering, show few trends, with 17 of the 18 sites showing no change (Table III), and one site showing a change using both time windows. These data suggest that acidification-related weathering is not changing in the region, most likely because there is little easily weatherable material in most basins.

We compared our results to those of Lettenmaier *et al.* (1991) who studied 403 streams in the United States using monthly data collected from 1978 to 1987. As with this study, they found increasing trends in pH, alkalinity and SO_4^{-2} concentrations. They did not look for trends in exports, though their concentration values were adjusted for flow using a complex procedure. Our data confirm their results for the northeastern portion of North America as well as those from Kahl *et al.* (1992), and also suggest that trends in deposition, discharge and climate need to be studied at the same time as water chemistry in order to improve our understanding of precipitation–water chemistry interactions in rivers.

Despite all limitations inherent in these complicated data sets, our data nevertheless show that amounts of the main acidification variable, H^+, has been reduced in a number of rivers in the region from 1983 to 1992. Because of complications inherent in basin hydrology and geology, however, the other associated variables such as SO_4^{-2}, ANC and Ca^{+2} do not unambiguously show corroborative trends.

Our work also shows that the length of the data set which we used only has a small impact on the detection of acidification-related water chemistry trends. Extending the data set by three years increased the number of rivers with measurable concentration trends for SO_4^{-2} by two, NO_3^- by for, TOC by seven and decreased Ca^{+2} trends by five. The results were somewhat different for export with two fewer sites showing SO_4^{-2} trends with the longer data series, one more site showing a trend in NO_3^- and TOC, and five more sites showing trends of increasing ANC. Longer data sets can change the abundance and directions of trends, so that series length can be a factor when seeing if water chemistry changes have occurred, through it was not a major factor in our data set.

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Regional trends in aquatic recovery from acidification in North America and Europe

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Rates of acidic deposition from the atmosphere ('acid rain') have decreased throughout the 1980s and 1990s across large portions of North America and Europe[1,2]. Many recent studies have attributed observed reversals in surface-water acidification at national[3] and regional[4] scales to the declining deposition. To test whether emissions regulations have led to widespread recovery in surface-water chemistry, we analysed regional trends between 1980 and 1995 in indicators of acidification (sulphate, nitrate and base-cation concentrations, and measured (Gran) alkalinity) for 205 lakes and streams in eight regions of North America and Europe. Dramatic differences in trend direction and strength for the two decades are apparent. In concordance with general temporal trends in acidic deposition, lake and stream sulphate concentrations decreased in all regions with the exception of Great Britain; all but one of these regions exhibited stronger downward trends in the 1990s than in the 1980s. In contrast, regional declines in lake and stream nitrate concentrations were rare and, when detected, were very small. Recovery in alkalinity, expected wherever strong regional declines in sulphate concentrations have occurred, was observed in all regions of Europe, especially in the 1990s, but in only one region (of five) in North America. We attribute the lack of recovery in three regions (south/central Ontario, the Adirondack/Catskill mountains and midwestern North America) to strong regional declines in base-cation concentrations that exceed the decreases in sulphate concentrations.

In the past two decades, the passage of national (for example, the Clean Air Act in the United States and the Eastern Canada Acid Rain Program in Canada) and international (for example, the United Nations Economic Commission for Europe's Convention on Long-Range Transboundary Air Pollution (UN/ECE LRTAP) Sulphur Protocols) environmental regulations and agreements has led to widespread declines in the rates of acidic deposition, especially of sulphur, across large regions of North America and Europe. In north/central Europe, SO_2 concentrations in air decreased by 63%, and SO_4^{2-} in precipitation by 40%, between 1985 and 1996 (ref. 2). In the United States and Canada, SO_2 emissions declined 28% between 1980 and 1995 (ref. 1); sulphur deposition in the same period decreased by 29% in the northeastern United States and by 35% in the upper midwestern United States[1]. In eastern Canada, decreases in SO_4^{2-} in precipitation ranged from 31% in Atlantic Canada to 36% in south/central Ontario[5]. In Great Britain, both emissions (32%) and wet deposition (43%) of sulphur declined between 1979 and 1993, with most of the decrease observable in the early 1980s (ref. 6). Few of these regions have recorded changes in the rate of nitrogen deposition during this time period. These pervasive declines in rates of acidic deposition create an expectation of widespread recovery in acidified surface waters. Reasoning that consistent recovery across a regional population of streams or lakes would provide the strongest evidence for the success of controls on acidic deposition, we report here on surface water trends at the regional scale.

The primary source of data for this analysis is the International Cooperative Programme on Assessment and Monitoring of Acidification of Rivers and Lakes (ICP-Waters), an international body

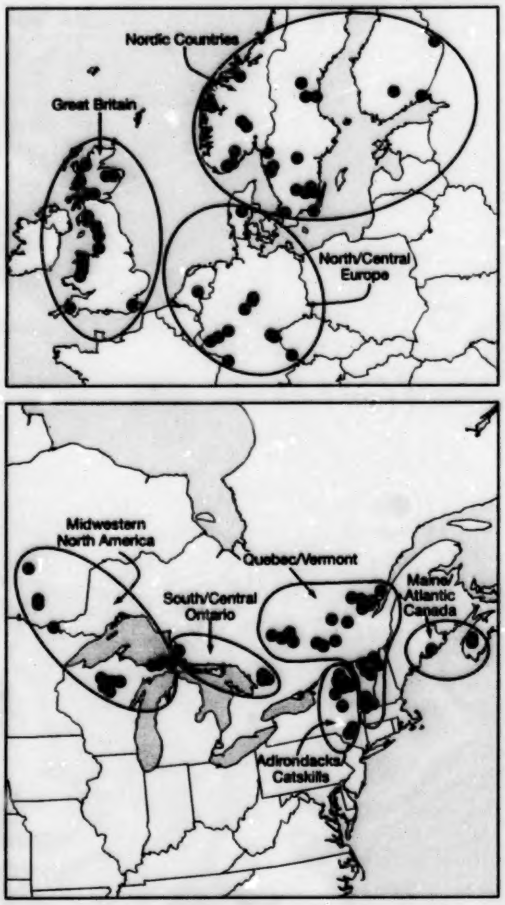

Figure 1 Lake and stream monitoring sites. Data from 205 long-term monitoring sites, located in eight regions of Europe and North America, were used in this analysis.

organized under the UN/ECE LRTAP. Additional data from national, provincial and international monitoring programmes (for example, in the United Kingdom[7], Canada[8], the United States[9] and the International Cooperative Programme on Integrated Monitoring in Europe[10]) were added in regions with inadequate sample sizes. The sampling frequencies used by these programmes varied substantially, from weekly in some cases, to quarterly or biannually in others. In order to standardize the data used in trend analyses, we chose quarterly sampling as a reasonable goal (achievable for most sites) and calculated seasonal mean values for the more temporally intensive data sets. We excluded sites with mean Gran alkalinity greater than 200 microequivalents per litre (200 μequiv. l^{-1}) in order to focus on those sites most likely to show recovery[11], as well as sites with fewer than three quarterly samples (on average), less than 5 years of data per decade, or where climate-driven trends have been documented. A total of 168 sites had sufficient data for the 1980s, and 205 sites had sufficient data for the 1990s. Sites were grouped into regions based on similarities in their geochemistry, in deposition trends in the 1980s and 1990s, and on their geographical proximity (Fig. 1).

Preliminary analyses indicated that temporal patterns in chemical variables were not monotonic; they tended to be curvilinear, with an inflection point around 1990. For this reason, and also to permit a comparison of trends between decades, we performed site-specific trend tests separately on data from the 1980s and 1990s using the non-parametric Seasonal Kendall test modified to account for serial dependence[12]. In order to infer regional trends, we applied a meta-analytical technique first described by van Belle and Hughes[13] that allows, with some restrictions, trend results from multiple sites to be combined into a single estimate of trend.

In performing the regional trend tests, we first tested the *Z*-statistics from individual Seasonal Kendall tests for homogeneity by attributing the variance among them to each of the possible sources of interest (sites, seasons and interactions) through an analysis of variance, and tested the resulting sums of squares against a χ^2 distribution[14]. There is no accepted threshold for deciding when heterogeneity among sites is sufficient to invalidate combining the trend results regionally. We followed the recommendation of van Belle and Hughes[13], set the threshold for tests of homogeneity conservatively (for example, $p < 0.01$), and examined the trend statistics more critically if they failed this test. In some cases (particularly for SO_4^{2-}), *Z*-statistics failed the homogeneity test despite having the same sign (for example, all $Z < 0$). In these cases, we conclude that the evidence for reporting a downward trend is sufficient to regard the results as reliable.

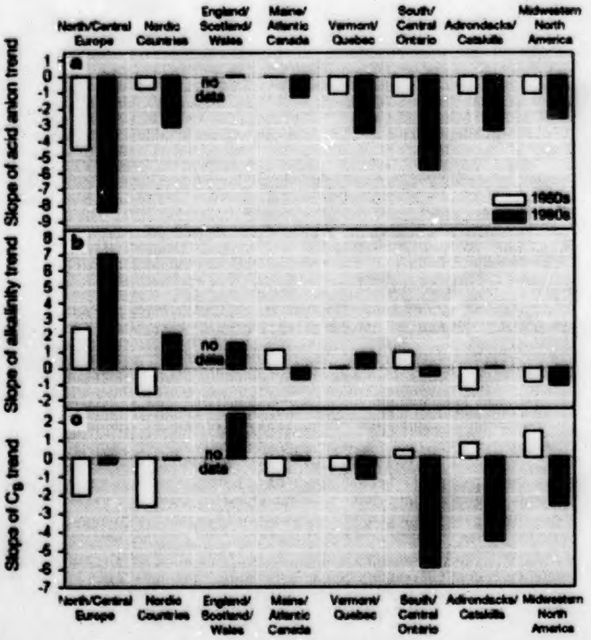

Figure 2 Regional acidification trend results. Histograms exhibit slopes of regional trends in **a**, acid anions ($SO_4^{2-} + NO_3^-$), **b**, measured (Gran) alkalinity, and **c**, base cation (C_B) concentrations for eight regions of Europe and North America for the 1980s and 1990s. All slopes are in μequiv. l^{-1} yr^{-1}.

At least two criteria should be fulfilled before extrapolation of site-specific trends to the regional level[11]: (1) the sites must be representative of the region or the regional subpopulation (for example, acid-sensitive surface waters) of interest; and (2) the sites should exhibit consistency of trend behaviour. We can test for the latter condition through the homogeneity test described above, but we have no current test for the former condition. Here we assume that monitoring programmes have made good judgments in choosing sites representative of acid-sensitive surface waters in each region. All of the ICP-Waters sites were selected using published criteria (for example, sites in headwater regions, free from local disturbance, and located on sensitive geology)[15]. The national and provincial programmes presented in this analysis used similar criteria.

The strongest evidence for a regional surface-water response to decreasing deposition comes from SO_4^{2-} trends (Table 1). Sulphate (we used non-marine SO_4^{2-} in regions within 100 km of oceans) has declined across most of Europe and North America, generally with more rapid declines during the 1990s. Only Great Britain failed to show a significant decline in SO_4^{2-} in the 1990s. Further, SO_4^{2-} trends were generally homogeneous within a region, suggesting strongly that SO_4^{2-} trends are driven by changes in atmospheric deposition. Only two subsets of data failed the homogeneity test. For south/central Ontario during the 1980s, all of the *Z*-statistics were negative, indicating decreasing SO_4^{2-}, and we consider the regional trend to be valid despite high χ^2 values. Vermont/Quebec in the 1980s was the only region that exhibited heterogeneity strong enough to invalidate a significant trend test; all of the sites with increasing SO_4^{2-} in this region and decade were located in Quebec, although none of the positive site-specific trends were significant.

Nitrate increases were nearly universal, but largely restricted to the 1980s. The largest increases, and probably the only ecologically significant ones, occurred in the Adirondack/Catskill mountains and north/central Europe. The nitrate increases in these regions during the 1980s have received considerable attention, generating concern that these high-deposition regions are experiencing nitrogen saturation[16]. Interestingly, these two regions also show the largest reversals of NO_3^- trends in the 1990s.

Both conceptual[17] and mechanistic[18] models of acidification suggest that decreases in acid anion concentrations ($\Sigma[SO_4^{2-} + NO_3^-]$) should be balanced by smaller decreases (relative to acid anions) in base cations (C_B) and increases in alkalinity (which we define as recovery). Large-scale patterns in recovery were evident across all the European regions (north/central Europe, the Nordic countries and Great Britain) during the 1990s (Table 1, Fig. 2). The lack of recovery in the Nordic countries in the 1980s has been reported elsewhere[19], and declines in C_B identified as the likely mechanism preventing alkalinity from recovery despite large decreases in sulphur deposition. Our analysis (Fig. 2) reinforces this interpretation, but highlights how this pattern changed in the 1990s. Nordic trends in C_B in the 1990s are relatively flat (Table 1), and continued strong decreases in SO_4^{2-} in this region appear to be leading to a recovery in alkalinity. It should be noted that the "recovery" observed in Great Britain does not appear to be driven by changes in acid anions (non-marine SO_4^{2-} is unchanged in the

Table 1 Regional trend

Region	Decade	N*	SO_4^{2-} trend		NO_3^- trend		Alkalinity trend		C_B trend	
			p	Slope (μequiv. l⁻¹ yr⁻¹)	p	Slope (μequiv. l⁻¹ yr⁻¹)	p	Slope (μequiv. l⁻¹ yr⁻¹)	p	Slope (μequiv. l⁻¹ yr⁻¹)
North/central Europe	**1980s**	**12**	**<0.001**	**−5.8**	**0.011**	**+1.3**	0.089	+2.5	0.921	−2.0
	1990s	**23**	**≪0.001**	**−5.9**	**≪0.001**	**−2.4**	<**0.001**	**+7.0**	0.909	−0.3
Nordic countries	**1980s**	**27**	**≪0.001**	**−0.8**	**0.002**	**+0.1**	<**0.001**	**−1.6‡**	**≪0.001**	**−2.6‡**
	1990s	**33**	**≪0.001**	**−3.1**	0.418	−0.0	**≪0.001**	**+2.1**	0.778	−0.0
Great Britain	1990s	18	0.510	+0.0	**0.024**	**+0.1**	**≪0.001**	**+1.5**	**≪0.001**	**+2.4**
Maine/Atlantic Canada	1980s	10	0.264	−0.0	0.829	−0.0	<**0.001**	**+1.2**	0.180	−0.9
	1990s	**10**	**≪0.001**	**−1.3**	0.883	−0.0	0.111	−0.7	0.585	−0.1
Vermont/Quebec	1980s	47	≪0.001	−1.1†	<**0.001**	**+0.0**	0.515	+0.1	<**0.001**	**−0.6**
	1990s	**49**	**≪0.001**	**−3.5**	0.133	−0.0	**0.028**	**+0.9**	**0.007**	**−1.1**
South/central Ontario	**1980s**	**13**	**≪0.001**	**−1.2‡**	0.002	+0.0§	≪0.001	+1.0†	**0.030**	**+0.4**
	1990s	**13**	**≪0.001**	**−5.8**	0.591	−0.0	0.817	−0.5	**≪0.001**	**−5.9‡**
Adirondack/Catskill mountains	**1980s**	**25**	**≪0.001**	**−1.7**	**≪0.001**	**+0.7‖**	<**0.001**	**−1.3**	0.775	+0.8
	1990s	**25**	**0.012**	**−0.9**	**≪0.001**	**−2.4**	0.426	+0.1	<**0.001**	**−4.5**
Midwestern North America	**1980s**	**34**	**0.023**	**−1.2**	<0.001	+0.1§	0.123	−0.9	<**0.001**	**+1.5**
	1990s	**34**	**≪0.001**	**−2.6**	0.782	−0.0	**≪0.001**	**−1.1**	**≪0.001**	**−2.8**

Results of meta-analysis of trends in SO_4^{2-}, NO_3^-, alkalinity and base cation (C_B) concentration for 1980s and 1990s in various regions. Statistics (p values based on χ^2 tests) are from an analysis of variance of site trend Z scores, and constitute a test of trend homogeneity within the regions. χ^2 values were considered significant at $p < 0.01$ for site and season effects. Statistics for a site–season interaction term are not shown, as they were never significant. Significant trends ($p < 0.05$) are shown in bold.

* Sample sizes vary among variables. N values listed are for SO_4^{2-}.

† Site heterogeneity is significant; trend statistics are questionable.

‡ Site heterogeneity is significant, but all slopes are negative; trend statistics considered valid.

§ Seasonal heterogeneity significant; trend statistics questionable.

‖ Seasonal heterogeneity significant, but all slopes are positive; trend statistics considered valid.

1990s, while NO_3^- has increased slightly), but instead results from increasing C_B concentrations (this is the only region to exhibit this phenomenon). The pattern in Great Britain appears to be driven by climate variations, particularly as they affect the transport of seasalt aerosols across the region, rather than by changes in anthropogenic emissions[20].

Despite large decreases in acid anions in south/central Ontario, the Adirondack/Catskill mountains and midwestern North America in the 1990s, there was either no regional recovery in alkalinity or continued acidification (Fig. 2); we attribute this pattern to compensating negative trends in C_B. Although some decrease in C_B is expected as SO_4^{2-} concentrations decline, C_B declines in excess of SO_4^{2-} declines are unexpected, and will preclude any recovery in alkalinity[21]. Among the mechanisms that have been hypothesized to produce excessive C_B declines are (1) decreasing C_B deposition[22], and (2) cation depletion of watershed soils[23,24]. While the former mechanism has been discounted in at least some regions[14], it is possible that long-term high rates of acidic deposition have leached enough cations from sensitive soils that adsorbed cation pools are severely depleted. If this depletion continues even at diminished levels of acidic deposition, it could produce the steep C_B trends we observe in these regions. The possibility that this mechanism will prevent or delay recovery deserves critical attention.

It is important to consider the effects that climate variation could have on the trends we report, especially for the relatively short 1990s time series we use in our analysis. The effects of climate on non-marine SO_4^{2-} trends and C_B behaviour in Great Britain have already been mentioned. Droughts in both south/central Ontario and midwestern North America have been shown to cause re-oxidation of reduced sulphur in wetlands and lake littoral regions[25,26]. The resulting increase in sulphate export can be relatively long-term, temporarily delaying the recovery response in lakes with plentiful wetlands in their watersheds; this mechanism undoubtedly contributes to the lack of homogeneity in SO_4^{2-} trends observed in south/central Ontario. In midwestern North America, however, where long water residence times create a great potential for climatic effects[27], declines in SO_4^{2-} in the 1990s far exceed what is attributable to a recovery from drought in the 1980s[28]; these trends doubtless reflect declining rates of deposition. Climate may also play a role in producing strongly decreasing C_B trends. In lakes with long residence times, prolonged periods of drought produce increased C_B concentrations and decreased rates of C_B export[29]; as lakes recover from drought, C_B concentrations may decline rapidly (for example, in drainage lakes, where increases result primarily from evapotranspiration) or slowly (for example, in seepage lakes, where increases result from changes in groundwater flowpaths)[27]. Although data from the current study are not sufficient to identify mechanisms incontrovertibly, the widespread declines in SO_4^{2-} we report are completely consistent with observed changes in rates of sulphur deposition in Europe and North America. Lack of lake and stream recovery, and particularly the strong decreases in C_B concentrations observed in some regions, may be due to a number of mechanisms, including climate fluctuations.

The three North American regions where recovery might be expected but was not observed (south/central Ontario, Adirondack/Catskill mountains and midwestern North America) exhibit the largest North American declines in acid anions and largest decreases in C_B in the 1990s, and are closest to significant emissions sources in the midwestern United States. Analysing whether the proximity of these regions to significant sources (and therefore higher, and possibly longer-term, inputs of acidic deposition) is related to their C_B behaviour is beyond the scope of this Letter. These trend patterns are very similar to those observed in the 1980s in the Nordic countries, where recovery is now occurring. Increasing trends in alkalinity and unchanging concentrations of C_B in the Nordic countries during the 1990s may be the result of higher rates of SO_4^{2-} decline (Fig. 2a), or may reflect the cumulative effects of longer-term declines in sulphur deposition (beginning in the late 1960s) in this region[30]. Long-term decreases in sulphur deposition could be expected to result in the recovery of soil cation pools (as rates of primary weathering begin to exceed loss rates due to leaching by acid anions), and eventual recovery after a sufficient time lag[17]. The recovery pattern in the Nordic countries suggests that larger decreases in sulphur deposition and/or a longer response time may be required before similar recovery is widely observed in North America. This suggestion of lagged recovery, coupled with evidence of the deleterious effects of climate variability in detecting recovery, highlights the importance of continued coordinated international monitoring to assess the success of acidic deposition control measures. ☐

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Sterilization and canopy modification of a swollen thorn acacia tree by a plant-ant

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Obligate symbioses between specialized arboreal ants and plants have evolved independently in many lineages[1,2]. Ant-plants (myrmecophytes) typically provide hollow nest cavities and nutrition to the occupying ant colony[1,3–6]. In turn, resident plant-ants often protect their hosts from herbivory[7–11] and/or overgrowth by surrounding vegetation[12,13]. As individual plants are rarely occupied by more than one ant colony[14–17], co-occurring plant-ant species compete intensely for hosts[13,14,18,19]. In such multi-species systems, ecological interactions among potential partners may lead to the evolution of cheating[20,21]. Previous studies have revealed that some specialized plant-ants are effectively parasites of their host-plants[8,18,22,23], but the selection pressures favouring such behaviours are poorly understood. Here we describe host parasitism in an east African plant-ant that prunes and sterilizes its host-tree canopies, apparently to minimize contact with competitively dominant ants occupying neighbouring trees. We propose that the high density of ant-trees and low diversity of tree species in this savanna habitat have selected for induced, parasitic pruning of host trees by this competitively subordinate ant species.

Whistling Thorn (*Acacia drepanolobium*) trees dominate vast areas of savanna on black cotton soils in upland east Africa[24,25]. At each branch node, *A. drepanolobium* trees produce either a pair of slender thorns or a swollen thorn pair joined by a bulbous, hollow base 1.5–6 cm in diameter (Fig. 1). When living on a tree, ants chew

Figure 1 Close-up of *A. drepanolobium* branches showing axillary leaves, paired slender thorns and a node occupied by a fused swollen thorn pair. To show architectural features clearly, this photograph was taken at the beginning of the rainy season, when relatively few axillary leaves were persistent on older growth. Resident ants had not yet chewed entry holes into the recently formed swollen thorn (centre). Swollen thorns are produced even in the absence of ants[26].

THE ROLE OF NATIONAL PARKS IN ENVIRONMENT CANADA'S ATLANTIC ACID PRECIPITATION MONITORING NETWORK

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SUMMARY

Since 1983, Environment Canada has been operating a lake monitoring network in two of Canada's Atlantic provinces, Nova Scotia and Newfoundland. The network was designed to see if changes in water chemistry related to acid precipitation could be measured in the region's surface waters. Approximately half the sampling sites are located in national parks, and we attempted to see if these sites were representative of the network as a whole. Our results show that the lake chemistry of national park sites was not representative of the network as a whole. Despite the differences, the water chemistry trends we measured at park sites, tended to mirror those of the entire network. We therefore conclude that if funding restraints force a radical change in sampling effort, retrenchment to park sites only, should provide the same type of information as from the original network.

1. INTRODUCTION

National parks have important advantages in lake monitoring programs because they are protected and offer undisturbed environmental conditions for extended periods of time. This is useful in acid precipitation studies because it is important to eliminate the effects of land-use changes which are known also to affect water chemistry. Using national park sites thus provides natural laboratories where the only uncontrolled variable is the atmospheric stressor. National park areas are also usually well described biophysically which is also necessary in explaining changes which may have occurred.

Atlantic Canada receives between 10 and 18 kg ha^{-1} an^{-1} of sulfate. Nitrate values are approxinately one quarter of the sulfate amounts (1). Levels are higher in the southwestern end of the region, reducing towards the northeast. When Environment Canada developed a lake sampling network in 1983, one of the main criteria deemed necessary for site selection was that the lakes used be free from current or future anthropogenic activity. The lakes also needed to be relatively representative of the major areas of coverage, in our case, the provinces of Nova Scotia and Newfoundland.

Canada's Atlantic region contains a number of national parks. Of these, four contain significant numbers of lakes: Kejimkujik and Cape Breton Highlands, in Nova Scotia; Gros Morne and Terra Nova in Newfoundland. The sampling network was thus designed to be concentrated in these areas because of the background information

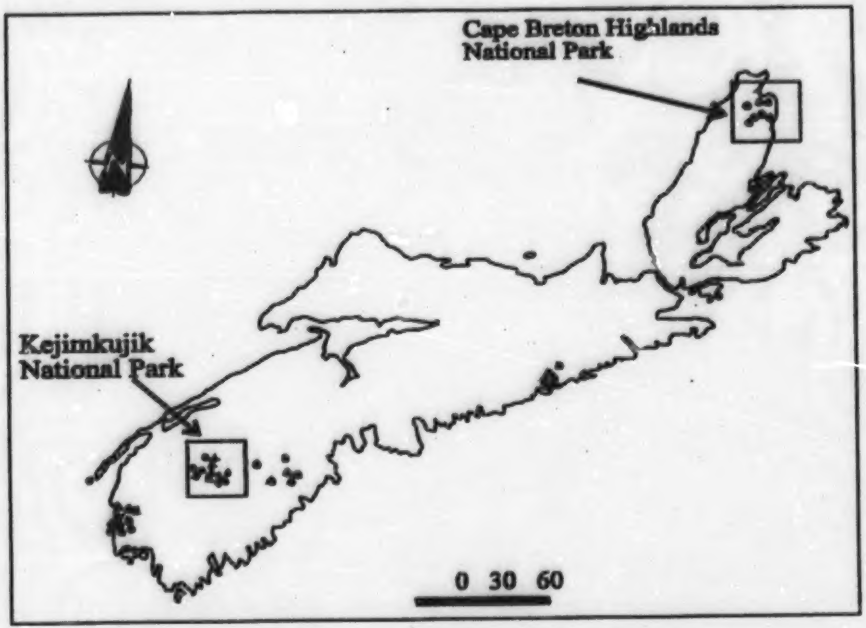
Cape Breton Highlands
National Park
Kejimkujik
National Park
0 30 60

Figure 1. Lake sampling site locations in Nova Scotia. The boxes represent national park locations.

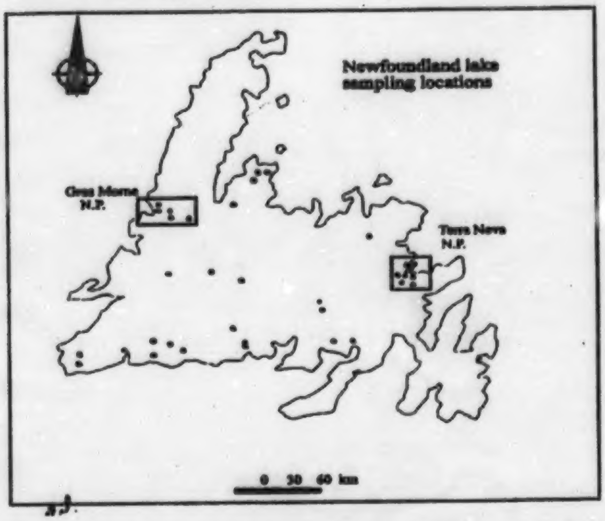
Newfoundland lake
sampling locations
Gros Morne
N.P.
Terra Nova
N.P.
0 30 60 km

Figure 2. Lake sampling site locations in Newfoundland. The boxes represent the national park locations.

available as well as the secure status of the lake basins. We also began sampling at a number of sites outside parks both in Nova Scotia and Newfoundland, in order to broaden our geographical coverage.

Data has been collected from a number of sites since 1983. The purpose of this paper is then to study sampling results from our monitoring work to see if: a) the sites currently being sampled in national parks can be used to describe regional water chemistry status, and b) to see if chemistry trends measured in national park lakes are similar to those outside parks.

2. AREA AND METHODS

Fifty-one lakes in the network had data which extended from 1983 to 1991 and were included in this study. Figures 1 and 2 show the location of the four national parks and outside sites for the two regions under study, Nova Scotia and Newfoundland. Of the 25 Nova Scotia sites studied, 19 were located in Kejimkujik National Park and six were in the southwestern portion of the province (Figure 1). The 26 Newfoundland lakes are more evenly spread throughout the province, with only nine being in Gros Morne and Terra Nova National Parks (Figure 2).

In 1989, a further 27 sites were added to the Nova Scotia sampling network in order to improve the coverage in the eastern portion of the province. Of these, 14 were in Cape Breton Highlands National Park at the eastern extreme. Though not enough data was available for trend analysis, these sites were used to compare the representativity of currently sampled national park sites to overall provincial water chemistry.

Samples were collected from 1983-91 twice a year during spring and fall overturn. Sampling protocols are documented in (2). Samples were analyzed at the regional Environment Canada laboratory using standard Environment Canada procedures (3). Only the results for colour, dissolved organic carbon (DOC), specific conductance, pH, ANC (measured using the Gran titration procedure), and sulfate (SO_4^{-2}) (measured using the ion chromatography or colorimetry methods), are reported here. All data were validated prior to being accepted for the present study. Data validation procedures included ion balancing, measured conductivity vs. calculated conductivity and outlier analysis. Data for sulfate were corrected in order to account for seaspray contribution (2).

Two types of statistical analyses were done for this study. First, we wanted to see how representative the national park sites were, compared to the overall network in both Nova Scotia and Newfoundland. The data collected in the Fall 1993 sampling at all lakes were used for this evaluation. Results for each variable were broken into different value ranges and percent occurrence of results in each range was estimated for the complete network and for the sites in national parks within Nova Scotia and Newfoundland.

Group distributions were then compared using a χ^2 test to see if there were any differences between the variable distributions. This analysis was done for the chemical parameters which define background environmental conditions, such as colour and DOC which reflect wetland abundances in basins and specific conductance which gives an indication of bedrock influence on water chemistry. The analysis was also conducted using pH, acid neutralization capacity (ANC) and sulfate (SO_4^{-2}), which are affected by acid precipitation.

Monotonic trend analysis was carried out on the water chemistry results from the

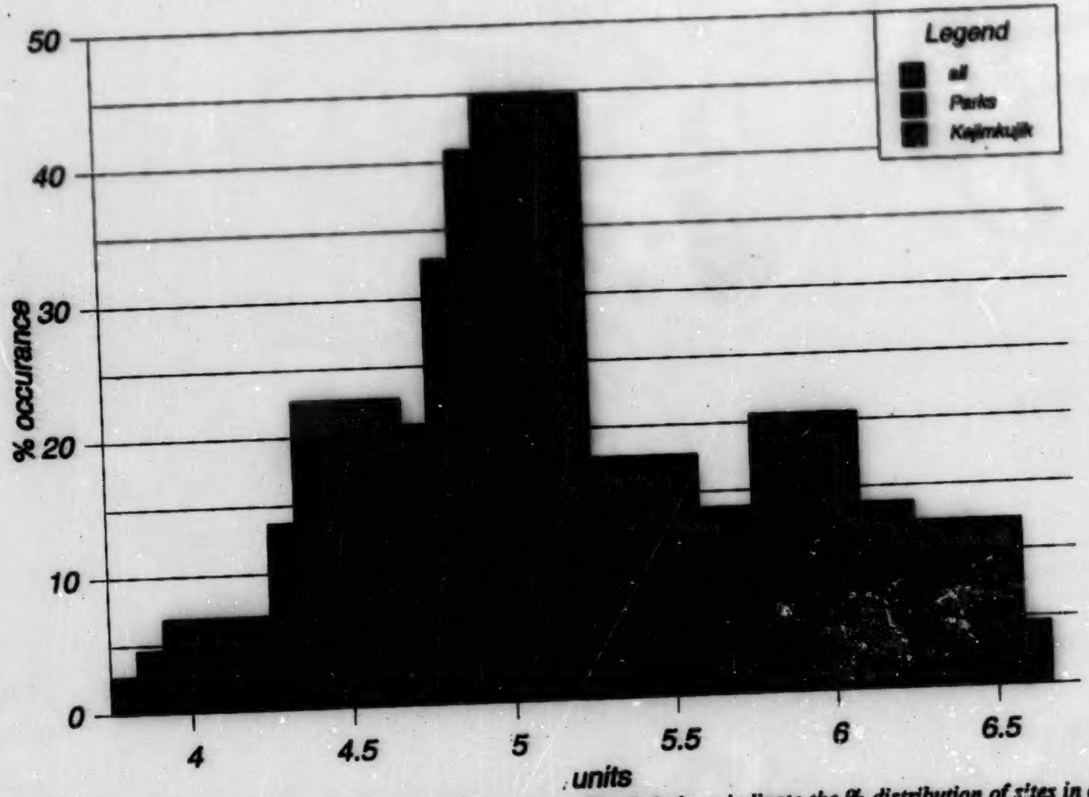

Figure 3. Percent distribution of lake pH in Nova Scotia. The light bars indicate the % distribution of sites in all of Nova Scotia, the intermediate colour bars represent those for all national parks in that province, and the darker bars only Kejimkujik Park.

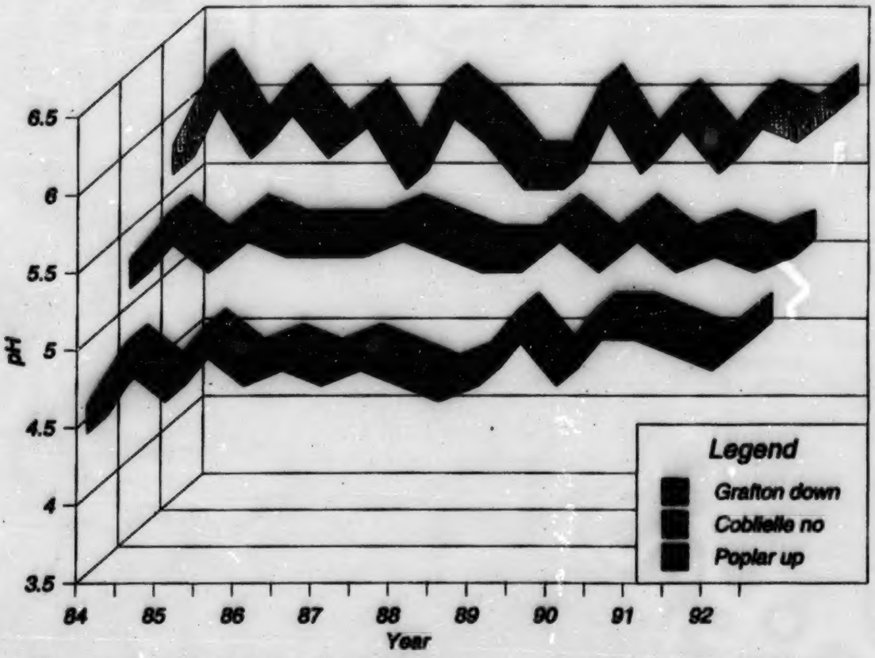

Figure 4. Typical pH times series for three lakes representing increasing (Poplar), decreasing (Grafton) and stable (Coblielle) trends in Kejimkujik National Park.

lakes which were sampled since 1983. All trend analyses were undertaken using the DETECT software package (4,5) and consisted of a series of non-parametric tests, the choice of which depended on whether or not there was seasonality and/or persistence in the data. In the DETECT software package, a trend is considered significant when its probability of occurring only by chance is below 5% ($\alpha = 0,05$). The temporal data were analyzed with a six-month interval from 1983 to 1992. If there were insufficient data available to form a defined interval (e.g., due to missing data or removal of outliers), the missing interval was replaced with the mean seasonal value calculated over the whole time period. ANC was the parameter which was most often missing with six lakes having a missing value. Colour values below the detection limit (DL) of 5 Relative Units were arbitrarily replaced by a value equalling two-thirds of the DL.

3. RESULTS AND DISCUSSION

Results showed that colour and DOC values from the two Nova Scotia national parks were statistically indistinguishable from the overall sampling network (Table 1). When we considered only Kejimkujik park however, the DOC and colour distributions were significantly different from the rest of the network, showing that the later addition of Cape Breton Highland sites improved the representativity of the parks' contribution to the provincial network. Colour and DOC in Newfoundland parks did not represent the provincial situation. The statistical analysis of specific conductance, pH (Fig. 3) and ANC in both Nova Scotia and Newfoundland showed that the national park sites did not

Table 1. Comparison of variable distributions between total network and portion of the network in national parks in each of the two provinces. The Kejimkujik column compares the data from only that park to the complete province network.

Variable	Nova Scotia all Parks	Kejimkujik	Newfoundland
colour	no difference	sig. dif @95%	sig. dif @95%
DOC	no difference	sig. dif @95%	sig.dif.@99%
Sp. Cond.	sig.dif.@99%	sig. dif @99%	sig. dif @95%
pH	sig.dif.@99%	sig. dif @99%	sig.dif.@99%
ANC	sig.dif.@99%	sig. dif @99%	sig.dif.@99%

Table 2. Summary of variable trend analysis results for the two regions. The % row indicates the relative importance of the three trend types in each of the sample sets. The arrows indicate whether there is an increasing, decreasing or flat trend.

	pH			ANC			SO_4			Colour		
	↓	↑	←→	↓	↑	←→	↓	↑	←→	↓	↑	←→
NS												
all	1	3	21	0	15	10	1	13	11	0	5	20
%	4	12	84	0	60	40	4	52	44	0	20	80
Parks	1	2	16	0	11	8	0	12	7	0	3	16
%	5	10	84	0	58	42	0	63	37	0	16	84
NF												
all	1	4	21	0	16	10	5	6	15	0	6	20
%	4	15	80	0	62	38	19	23	58	0	23	77
Parks	1	1	7	0	4	5	3	2	4	0	4	5
%	11	11	77	0	44	56	33	22	44	0	44	56

represent the overall provincial network pictures.

Our results show that the lakes in the Environment Canada Atlantic acid precipitation network which were located in national parks cannot be considered to be typical for the sites in the overall network. The park lake chemistries are therefore not statistically representative of the larger areas being studied and thus throw some doubt on their ability to represent the remainder of the network in terms of trend analysis.

Figure 4 shows typical data series describing increasing, decreasing and no trends in pH data while Table 2 summarizes the results of trend analysis in both portions of the network. α^2 analysis of the trend percentages showed that the proportion of sites with trends moving in the same directions in Kejimkujik National Park and in the overall network in Nova Scotia for pH, ANC, sulfate and colour could not be shown to be dissimilar at the 95% confidence level. Because there was a lower proportion of park lakes in Newfoundland, the null hypothesis of no differences in pH, ANC and sulfate trends could only be rejected at the 99.9% level. There was no similarity between colour trends in and out of Newfoundland parks, though this was not serious as colour is a background variable unaffected by acidification.

It can be seen that the percentage of sites showing similar trends inside and outside parks in Nova Scotia were similar for all variables. Some similarities also existed with the Newfoundland network, though results were not as good as for the Nova Scotia portion, most likely because of a greater proportion of Nova Scotia lakes being in national parks (75%) than in Newfoundland (35%).

The main reason for the similarities in trend direction in both portions of the network, but especially for Nova Scotia is that all lakes within the same geographical regions are subjected to acid precipitation. If the lakes are at all sensitive to the effects of this pollutant, then their lake chemistry should change in the same directions. For example, increases in sulfuric acid deposition in Nova Scotia, should result in increases of SO_4^{-2}, its natural tracer. Increases in acid deposition should also lead to decreases in pH and changes in ANC.

The similarities should be present over the whole region, unless geological considerations interfere. Geology can modify this scenario in two ways. Bedrock which generates SO_4^{-2} from gypsum or anhydride would confuse SO_4^{-2} trends. It can also provide enough buffering capacity from limestone to neutralize acid precipitation and increase ANC (6). These conditions are known to occur at a number of the Newfoundland sites.

We can thus suggest that though they are not necessarily typical for their provinces, lakes located in the four Atlantic Canada national parks which we study will nevertheless show representative trends in acidification effects for the whole network.

Though most of the Nova Scotia lake network was set up in 1983, sites in the eastern part of the province, including Cape Breton Highlands National Park, were not regularly sampled until 1989. Thus only 25 Nova Scotia sites had suitable data from 1983 and were used to see if acid precipitation related chemistry trends could be detected. Of the 25, 19 were located in Kejimkujik National Park. The addition of a further 14 sites in Cape Breton Highlands National Park which should provide data sets long enough for trend detection in 1995 can only improve the ability of sites located in national parks to provide information on regional acidification trends.

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ACID PRECIPITATION AND WEATHERING BY ORGANIC ACIDS IN LABRADOR LAKE BASINS[1]

Thomas A. Clair[2]

ABSTRACT: Thirty-five lakes in southern Labrador sampled in 1981 were resampled in 1989 and water chemistry values were compared between visits. Results showed higher pH, specific conductance, acid neutralization capacity, color, and base cations values in 1989, though sulfate, the ion most likely to reflect acid precipitation impacts, did not vary. The major ion changes measured were probably due to natural hydrological variations and not to changes in acid inputs.

Results from the 1989 data showed a slight, but significant, decrease in water sulfate concentration trend from western to eastern Labrador, though most values, even in the western portion of the study area, fell close to the values considered "background" by Brakke *et al.* (1989). Base cation concentrations exceeded those which could be predicted from weathering by carbonic and bicarbonic acid. Assuming that little weathering is generated by acid precipitation in this region, the excess cations measured are probably a result of bedrock dissolution from organic acids generated by plant decomposition. Calculations showed that organic acid effect could be responsible for 9 to 52 percent of total weathering in the study basins.

(KEY TERMS: Labrador; major ions; weathering; organic acids; acidification.)

INTRODUCTION

Most freshwaters in industrialized parts of the world have been affected by acid precipitation. Because of a late recognition of the problem, however, there exists little dependable pre-pollution information on freshwater chemistry, making it difficult to understand natural geochemical processes affecting water quality. "Pristine" sites are thus needed to permit the clarification of two important questions: what background levels of sulfate (SO_4^{-2}) should be expected in unimpacted regions compared to those from industrial regions, and what is the importance of dissolved organic carbon in weathering processes and acid-base properties of freshwaters?

These concerns have been addressed in other studies. For example, Brakke *et al.* (1989) studied data from a number of sites in the continental USA and Europe, and estimated background SO_4^{-2} values to range from 10 to 15 μeq L^{-1} in surface waters. Clair *et al.* (1982) measured SO_4^{-2} values in southern Labrador ranging from 20 to 58 μeq L^{-1}. These were acquired using the methyl thymol blue (MTB) analytical technique however, which is now known to overestimate actual values because of reactions between the reagents and natural organic acids (Kerekes *et al.*, 1984). As most Labrador sites sampled in 1981 contained highly colored waters, it was thus seen that a more accurate measurement approach would provide a better assessment of anthropogenic acidification in this isolated part of North America.

Natural organic acids (humic substances), as reflected by dissolved organic carbon (DOC), or color, are an important component of freshwaters. The complexation of cations with DOC has been suggested to be an important factor in weathering processes by Cronan (1985) amongst others. Because of this, DOC in high concentrations probably determines to some extent the cation composition of freshwaters, as the hydrogen ions produced in the formation of humic substances are then implicated in bedrock weathering. These kinds of reactions have been shown to occur in laboratory settings, though no studies seem to have quantified the role of organic acids in the natural production of freshwater base cations.

Understanding the role of organic acids in generating freshwater cations is necessary to assess the impact of anthropogenic acidification. The importance of mineral acid effects is assessed by calculating the ratio between the water's acid neutralization capacity

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(ANC) and the sum of base cations (C_b), composed of those ions released by weathering. This technique, developed by Schindler (1988) assumes that under "pristine" conditions over large variations in bedrock, the ratio between ANC and C_b is >0.6, as all weathering is assumed due to bicarbonate and carbonic acids. As stronger acids are introduced into the system, the ratio becomes smaller due to further production of base cations from dissolution of minerals without a compensatory increase in ANC. It is usually assumed that the extra acidification is anthropogenic. The problem, as has been described elsewhere (RMCC, 1990a), is how to assess the impact of natural organic acids on weathering in order to separate natural from anthropogenic effects. It was decided to study this problem using DOC, ANC, and C_b data from what was hoped might be pristine sites, to see if modifications to the ratio approach could be made to separate weathering from organic and anthropogenic sources. The problem was addressed by resampling a number of the Labrador lakes visited in 1981 by Clair *et al.* (1982).

Air pollution is a problem affecting much of the planet, though some areas, located far from sources, are much less impacted than others. Labrador is one of the areas of North America furthest from large-scale acid pollution sources located in the Great lakes basin and the eastern seaboard of the Untied States (RMCC, 1990b). As such, this region should give some indication of pre-pollution conditions elsewhere. Water chemistry studies conducted in Labrador before 1981 were restricted spatially and measured only a few chemical species. A survey of 42 lakes conducted in 1981 by the Water Quality Branch of Environment Canada (WQB) and the University of Minnesota (Clair *et al.*, 1982) was designed to provide a more chemically and geographically comprehensive description of Labrador's lake chemistry. Its results showed waters high in DOC and low in dissolved inorganic ions.

In 1989, WQB resurveyed many of its original sites to see if changes in water chemistry had occurred over the intervening years. The purpose of this work is then: (1) to assess the chemistry of lake waters from Labrador in 1989 and compare results to those measured in the 1981 sampling program to see if changes in aquatic ions had occurred; (2) to determine accurate SO_4^{-2} concentrations of these waters; (3) with high quality data, to see if there are east-west differences in SO_4^{-2} which would indicate acid precipitation effects in the portion of eastern North America furthest from pollution sources; and (4) to understand the relative contributions of mineral versus organic weathering in areas receiving little or no mineral acid inputs.

STUDY AREA AND METHODS

Labrador is located on the extreme northeastern edge of North America (Figure 1). It is lightly populated, with approximately 29,000 people occupying nearly 280,000 km^2. The main industries are iron ore mining, fishing, trapping, hydroelectric power generation, and the maintenance of an armed forces base, so that little anthropogenic acidifying pollution is generated locally. The portion of Labrador sampled in 1989 was the southern part which occupies approximately two-thirds of the total region.

The study area typically receives between 1000 and 1100 mm of precipitation, of which only approximately 400 mm evaporates. The mean July temperature is 12.5°C (Hydrological Atlas of Canada, 1978). Though no dependable precipitation chemistry data exist for most of the region, values from precipitation stations at Fermont and Schefferville in northeastern Quebec, near the western Labrador border show annual precipitation pH of 4.84 and 4.98 and SO_4^{-2} of 15.1 and 13.2 μeq L^{-1} (Boulet and Jacques, 1989). The pH values are slightly lower than the 5.0 to 5.2 range considered to be background by Galloway *et al.* (1982). Atmospheric deposition models suggest that the areas in the eastern portion of Labrador receive even less anthropogenic sulfate (RMCC, 1990b).

The region is underlain in the western and southeastern portions mainly by Helikian gneisses and earlier granites (Newfoundland and Labrador Department of Mines, 1975) and in the northeast by Helikian biotite-quartz, feldspar assemblages and Archean granites. Also scattered throughout the region are sandstone, evaporite, and igneous formations which complicate the description of the area. Throughout most of the sampled area, soils are thin and poorly drained with *Sphagnum* bogs being commonplace throughout the southern part of the region (Lands Directorate, 1977). Topography is generally flat in the southwest, and hilly in the southeast and northeast.

Thirty-five sites were visited during August and September both in 1981 and 1989 (Figure 1) and samples collected by hand, approximately 0.3 m below the water surface, in the middle of the lake. Table 1 lists the analytical methods used by the laboratory in 1981 and 1989. All procedures are described in Anonymous (1984). Where the same method is identified, analysis was done on the same instruments and, often, by the same technician. Sulfate analysis of samples collected in 1981 was done using the methyl thymol blue (MTB) method, a method shown to be inaccurate in highly colored waters (Kerekes *et al.*, 1984). However, in order to compare concentrations of this ion between the two samplings, MTB, as well as the more accurate

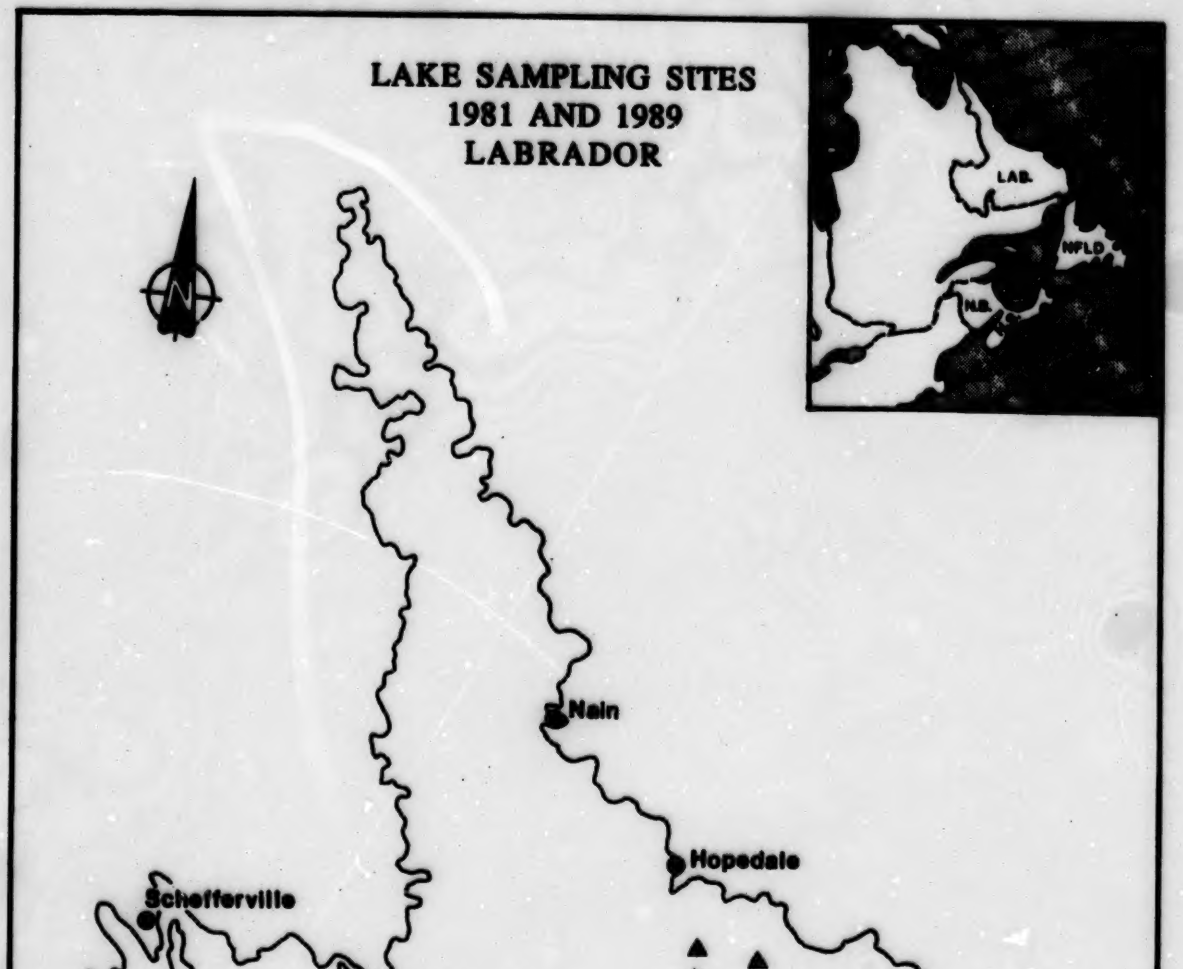
LAKE SAMPLING SITES
1981 AND 1989
LABRADOR
LAB.
NFLD
N.S.
Nain
Hopedale
Schefferville
Cartwright
Goose Bay
Happy Valley
Fermont
Senecal Lake
SCALE
30 0 30 60 km

Figure 1. Location of Sampled Lakes in Southern Labrador.

TABLE 1. Analytical Methods Used on Samples Collected Over the Two Samplings.

Parameter	Method Used, 1981	Method Used, 1989
pH	Potentiometric	Potentiometric
Acid Neutralization Capacity (ANC)	Two Endpoint	Gran
Color	Visual (Hazen)	Visual (Hazen)
Dissolved Organic Carbon	Infrared Anal. High Temperature Combustion	Colimetric, Wet Oxidation
Chloride	Specific Ion Electrode	Ion Chromatography
Sulfate	Methyl Thymol Blue (MTB)	Ion Chromatography and MTB
Calcium	Atomic Absorption	Atomic Absorption
Magnesium	Atomic Absorption	Atomic Absorption
Potassium	Emission Flame Photometry	Emission Flame Photometry
Sodium	Emission Flame Photometry	Emission Flame Photometry
Alumium (extractable)	Atomic Absorption	Atomic Absorption
Manganese (extractable)	Atomic Absorption	Atomic Absorption
Iron (extractable)	Atomic Absorption	Atomic Absorption

ion Chromatography (IC), was again used on samples collected in 1989.

Three other methods (chloride, DOC, and ANC) varied between sampling. Chloride was done using a specific ion electrode in 1981, and by ion chromatography in 1989, DOC by total combustion using a Beckman Instrument and UV persulfate methods, while ANC was done using the two endpoint method in 1981 and the Gran approach in 1989. The two chloride methods were run in parallel in the laboratory for a number of months, and the results were found to be nearly identical. Comparison of the results from the two years were then thought to be valid.

The two methods used in the DOC analyses have been shown to produce results significantly different from each other for lake and river samples. Koprivnjak *et al.* (ms) have shown that wet oxidation methods (UV persulfate) underestimate total combustion techniques by approximately 15 to 30 percent, most likely because of incomplete oxidation of DOC to CO_2 by the former method. This suggests that DOC results from the two sampling years are probably not comparable, as the earlier method was probably more accurate, producing higher values. The switch in techniques was due to the fact that the earlier total combustion methods were manual. The wet oxidation techniques, being more easily automated, were generally preferred by laboratories. Despite reservations about methods, the data collected were nevertheless compared with the knowledge that the 1989 results were most likely biased low.

The Gran approach is thought to be more accurate than two endpoint in waters with low pH or in waters containing high concentrations of natural organic acids because it calculates the sample's capacity to neutralize acid using a more complete titration curve than the other method, which inherently assumes that all acid neutralization is due to carbonate buffering. Because of this, the two endpoint method has a detection limit of 1.6 µeq/L (expressed as bicarbonate), while the Gran approach can measure excess acidity, which is often recorded as negative ANC. The Gran method's main advantage is that it can produce useful data in waters with ANC lower than the two endpoint approach, and that it takes organic acid buffering effect into consideration. However, as no lake waters sampled in 1981 were at or near the detection level, which was the main inadequacy of the two endpoint approach, a comparison of data from both sampling years is probably quite valid.

A number of sites along the east coast of Labrador had elevated levels of Cl^-, suggesting a major ion component contributed by sea-spray from the nearby Labrador Sea. All data sets were normalized to remove this component by using the sea-salt correction factor of Watt *et al.* (1979).

Results and Discussion

Quality control in the 1989 field sampling and laboratory analyses was determined from five sets of replicate samples collected at sites randomly selected during the field work. Results of the analyses (Clair, 1990) showed good reproducibility in all parameters from all samples, as standard deviations were always <10 percent of the mean, except for one site where SO_4^{-2}, Mg, K, and Na showed greater variability. As the values obtained from this site were at or near the analytical detection limits for the methods, the greater variability was likely indicative of the problems involved in analyzing very low ion concentrations. Overall, the results did not compromise the use of the samples in data analysis.

The 1989 data (Table 2) showed that these waters are very dilute compared to those elsewhere in North America (Brakke *et al.*, 1989). As a result of the generally resistant bedrock, ANC was low as were the

TABLE 2. Mean Variable Values for Each Sampling Data, Along With Numbers of Pairs Used, and Results of Paired T-Test. Diff. signifies the mean of the paired differences; conf.± indicates the 95 percent confidence levels of the mean differences.

Parameter	1981				1989					Diff.	Conf.±	Sign. @ 95%
	Mean	Max	Min.	SD	Mean	Max.	Min.	SD	n			
H^+ (µeq L^{-1})	0.98	3.2	0.16	0.87	0.67	2.51	0.2	0.5	35	-0.3	0.5	yes
ANC (µeq L^{-1})	26.2	59.0	7.5	14.4	41.0	105	13.0	20.3	35	14.5	9.1	yes
Color (Hazen)	35.9	110	4	27.2	52.2	120	4.0	30.9	35	16.3	9.5	yes
DOC (mg L^{-1})	6.65	130	1.0	2.7	6.35	12.2	0.9	2.5	35	–0.3	1.05	no
C_b (µeq L^{-1})	94.7	157	47.2	22.3	111.2	181.5	48.6	29.3	35	16.5	8.6	yes
Cl^- (µeq L^{-1})	17.2	45.1	22.8	L2.9	16.6	70.5	L11.3	11.9	35	–0.7	4.4	no
MTB SO_4^{-2} (µeq L^{-1})	39.1	58.2	20.8	7.8	38.6	54.1	18.8	8.0	26*	–0.4	7.4	no
IC SO_4^{-2} (µeq L^{-1})	N/A	N/A	N/A	N/A	17.7	35.4	10.4	5.3	35	N/A	N/A	N/A

*Not all sites had MTB SO_4^{-2} analyzed in 1981.

sums of the base cations (C_b). Nitrate values were all below detection levels of 8.0 µeq L^{-1}, and are thus neglected in the data analysis. Sulfate values generally fell near the range of 10 to 15 µeq L^{-1} estimated as being near background by Brakke *et al.* (1989).

In order to determine whether there was a difference in chemistry between 1981 and 1989, values from the 35 lakes which were sampled in 1981 and 1989 were compared using a paired T-test (Table 2). Results showed that pH, C_b, specific conductance, ANC, and color were greater in 1989 than in 1981. Cl^-, SO_4^{-2}, and DOC were not significantly different between the two years. The lack of change in Cl^- and SO_4^{-2}, which are both of atmospheric origin and relatively conservative within watersheds, implies that the main inorganic components of both anthropogenic and natural precipitation did not vary between the two samplings.

As the mean values for color were higher in 1989 than 1981, it was expected that DOC also would be, but this turned out not to be the case. The probable reason for this was explained in the Methods section, as the 1989 values are probably biased low. Based on the color values, DOC probably also was higher in 1989 than the 1981 baseline. Other reasons are possible for the lack of difference. Clair *et al.* (1989) showed that the acid-base chemistry of DOC will change with time due to biological activity, even when DOC concentration themselves do not vary. The difference in color, though not DOC concentration, could be due to similar chemical changes brought on by different biological, diagenetic, or hydrological conditions during the two sampling times.

As most ions were higher in 1989 than 1981, it was thought that a hydrological mechanism could be responsible for controlling the terrestrial contribution to water chemistry. To support this thesis, river discharge was compared for the Eagle River in east-central Labrador for 1981 and 1989. Records showed discharge in the 12 months previous to the sampling to be 60 percent greater for 1981 than 1989. This difference suggests that the wetter conditions in 1981 probably led to more diluted water chemistry than in 1989. No limnological information is available for the sampled lakes, but, as most of them appeared to be shallow glacial scour lakes draining large, boggy watersheds, the water chemistry differences measured could be related to changes in dilution.

In Atlantic Canada, most of the atmospheric acidifying substances are produced in the Great Lakes basin and along the northeastern coast of the United States, and are transported in an eastward direction by prevailing weather systems (Shaw, 1979; RMCC, 1990b). An eastward trend of decreasing surface water SO_4^{-2} might be detected in the Labrador Lakes, as no major local anthropogenic sources exist. In order to test this hypothesis, a point was arbitrarily chosen in southwestern Labrador, the part of the region closest to the known origin of acidifying chemicals. From Senecal Lake (Figure 1), distances were measured to each site sampled. The distances, ranging from 48 to 396 km were correlated to sea-salt corrected IC SO_4^{-2}.

Using all data, a slight negative regression was calculated between distance and SO_4^{-2} where SO_4^{-2} = –0.02 (distance in km) + 22.57 (R^2 = 0.19, significant at 99.9 percent, n = 35). Though significant, the regression only explains approximately 20 percent of the variance. It may be that other reasons are more relevant to explaining the SO_4^{-2} trends which exist in the region. Geology and soil composition are not consistent between parts of the region and could be partly responsible for the differences measured. This result suggests that anthropogenic acidification, if it is of importance, is not a main contributor to water chemistry, as it did not vary greatly in importance over the 400 km distance covered in the study area.

The differences between measured SO_4^{-2} values in Labrador, and those estimated as being background by Brakke *et al.* (1989) (roughly between 10 and 15 μeq L^{-1}) were also compared. Values from this study ranged from 10.4 to 35.4 μeq L^{-1}, with median and mean values of 16.6 and 17.7 μeq L^{-1}. When the four sites located near evaporite formations were removed, the range was 10.4 to 22.9 and the mean value was 16.3 μeq L^{-1}. Considering that SO_4^{-2} values range between 53 and 73 μeq L^{-1} in nearby New Brunswick and Nova Scotia, and are generally greater than 125 μeq L^{-1} in southern Quebec and Ontario (RMCC, 1990), and, despite a slight west-east SO_4^{-2} trend, lake values in Labrador were so near the background values proposed by Brakke *et al.* (1989) that anthropogenic acidification was considered not to significantly affect the major ion chemistry of lakes in the region.

Since acid precipitation was not a significant problem in Labrador, it could be assumed that all weathering in the study basins was probably due to natural phenomena. The lake data were then studied to see if weathering effects driven by carbonic acids could be isolated from those of organic acids. Schindler (1988) reported that, based on stoichiometric considerations, the ANC to base cations CA^{+2}+Mg^{+2} (C_b) ratios in areas not subject to acid precipitation should be in the range 0.6 to 1.1, due to natural rock compositions. This ratio decreases with increases in cations which are caused by increased weathering, one of the important effects of acid deposition (Schnoor and Stumm, 1986). When the ANC/C_b relationship was calculated using the 1989 Labrador data, the ratios showed values averaging 0.51, ranging from 0.76 to 0.33, thus suggesting a source of weathering not accounted for by simple carbonate system processes.

The most important source of increased weathering in areas unimpacted by acid precipitation is organic acids generated by organic matter decomposition occurring in soils. Kodama *et al.* (1983), Manley and Evans (1986), and Miller *et al.* (1986) have all shown that organic acids dissolved a number of mineral types, which would tend to release cations into solution, though at rates lower than would be the case in strong acid weathering, such as involved in acid precipitation. Oliver *et al.* (1983) calculated that, on average, approximately 10 μeq of organic anion sites, and thus protons, are generated per mg of organic C (C_t(μeq L^{-1})=10*DOC (mg L^{-1})). They also calculated an approach for estimating an organic acid mass action dissociation constant where the pK_a = 0.96+0.9pH–0.030$(pH)^2$. The organic anion concentration (A^-) is then calculated as $A^- = C_t(K_a/(K_a+H^+))$.

A number of studies however (Kortelainen *et al.*, 1989; Clair, 1991; RMCC, 1990a; Tipping *et al.*, 1991) have found that, though the "active" charge density of organic acids varies between sites and season, it generally averages at approximately 5 μeq $(mgC)^{-1}$, only half of the Oliver *et al.*, estimate. This value was then assumed to be a more accurate estimate of organic acidity effect. The corrected organic anion value is here referred to as A^{-*}.

Whether organic matter is involved in weathering was examined by regressing the calculated ANC/C_b values with DOC. This regression (–0.013(DOC) + 0.581, R^2 = 0.17), was significant at the 90 percent confidence (Figure 2). Obviously, the poor correlation shows that a number of other factors, such as pH and chemical makeup of the basin rocks, are very important in affecting the ANC/C_b ratio. However, it can also be seen that there is a tendency for decreasing ratios with increasing DOC concentrations, suggesting an increasing importance of organic acids in affecting the ratio. To compensate for potential natural organic anion effect in weathering, the ratio equation was modified to include the organic anion contribution, i.e. $(ANC+A^{-*})/C_b$. The revised ratio mean for the 35 sites was 0.85, with a range of 1.11 to 0.62, with all values now falling within the range expected for non-polluted conditions.

In order to determine the organic anion contribution to base cation weathering, the difference between the two weathering relationships was calculated for each sample. Results showed the A^{-*} effect contributed on average 32 percent of C_b generation, with values ranging from 9 to 52 percent. Figure 3 compares the range of new values for the samples with the 1:1 line reflecting the original ratio. Once more, it can be seen that there is a scatter in the modified data,

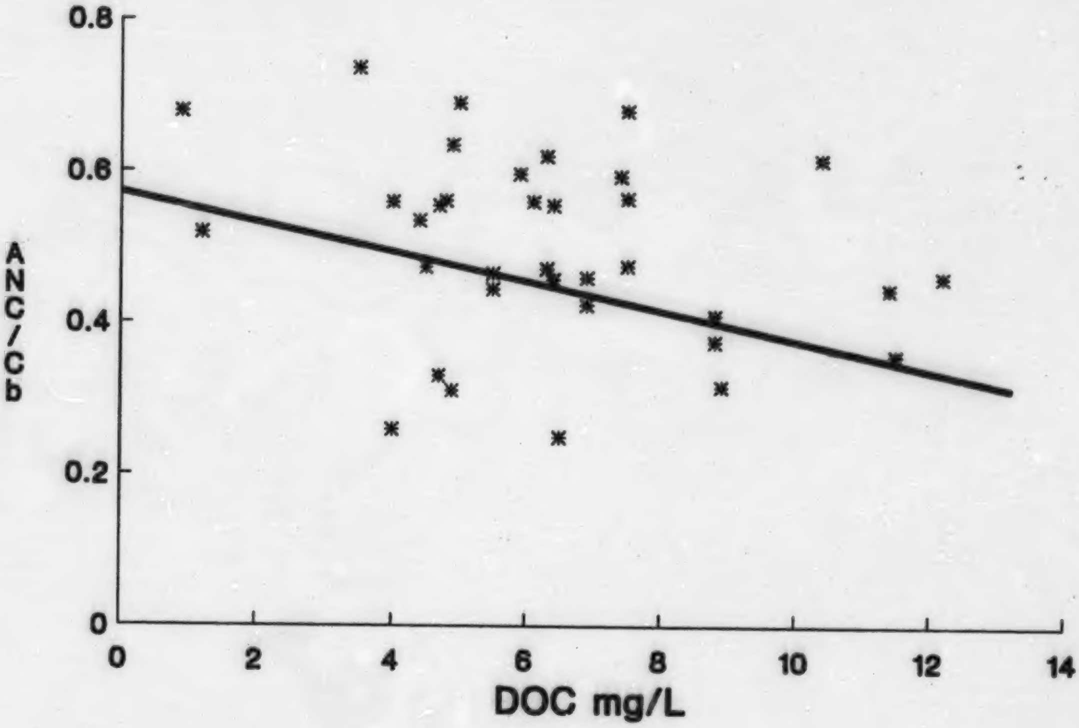

Figure 2. Relationship Between DOC Concentration and the ANC/C_b Ratio in the Study Lakes, Using 1989 Data.

suggesting that water chemistry, basin bedrock composition, and hydrology must play important roles in the weathering processes. The use of cation-anion ratios is sometimes looked upon with suspicion as they often tend to average out or overlook complications of geology, or because they sometimes do not take into account other natural factors which are involved in weathering processes. The use of the organic anion factor described above can be used to reduce some of the uncertainty involved in estimated weathering from anthropogenic factors.

In Nova Scotia, where the DOC range is similar to that of southern Labrador, a positive correlation was found between DOC and Fe and Al in surface waters (Freedman and Clair, 1987; Urban *et al.*, 1990). This relationship did not prevail with the Labrador data where total extractable Fe ranged from 0.008 to 0.72 mg L^{-1} and Al from 0.02 to 0.18 mg L^{-1}. The causes for this difference could be due to bedrock type or differences in the reactivity of DOC, or due to the increased weathering of bedrock in Nova Scotia by anthropogenic acids.

CONCLUSIONS

Results of this work indicate that a number of factors must be taken into account when comparing values from lake surveys conducted at periodic intervals. First, the importance of hydrological conditions can be seen. The differences in concentration values between 1981 and 1989 are probably due to variability in hydrological conditions between the two sampling dates. Hydrological data suggest that a concentration effect could explain the higher cation and color conditions in lake waters in 1989. Trends in acidification of surface waters must be placed in the context of normal year-to-year variability. In other words, this work is a warning to network managers who sample sites very infrequently and expect to determine variable trends caused by stressors.

Based on the data presented here, most lakes in southern Labrador have SO concentrations at or near the background values identified by Brakke *et al.* (1989) and probably have not changed between 1981 and 1989.

Secondly, analytical techniques have to be carefully scrutinized to ensure data comparability. Our results show that DOC and SO_4^{-2} were not comparable

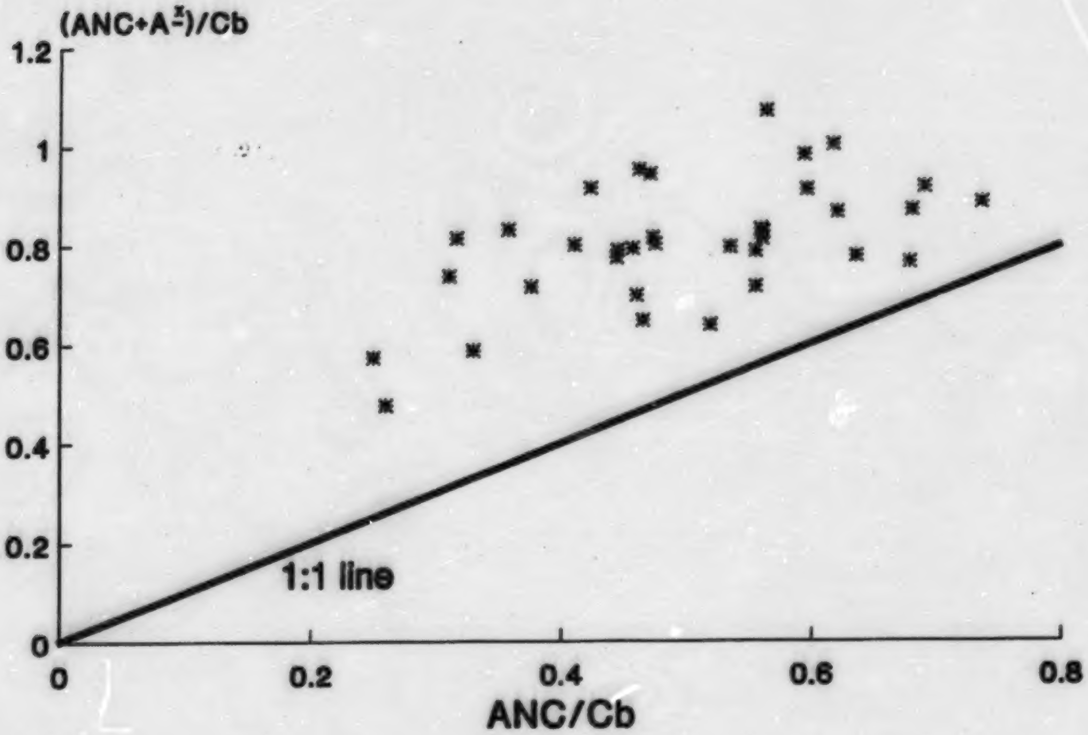

Figure 3. Change in Ratio Value When Including the Organic Anion Component. The points should be considered relative to the 1:1 line.

between the two samplings. SO_4^{-2} differences could be estimated using the less accurate MTB method, to give some indication of differences between the two sampling years. However, absolute values from 1981 were not true indicators of differences.

Analysis of water samples from Labrador lakes allowed an assessment of the impact of DOC in the weathering process. If the natural organic contribution were not taken into account, ion ratio values would suggest that the lakes were subject to acid precipitation. It was shown that organic acids must be included to adequately estimate weathering effects.

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